DOI:
10.1016/S2215-0366(17)30333-4

Document Version
Peer reviewed version

The Lancet Psychiatry Commission

Future of Psychiatry

Introduction

Psychiatry has always been a medical discipline: but was this inevitable, and will it always be this way? The profession has changed so much since so-called alienists treated their "alienated" patients up to the 19th century when psychiatry as a term emerged. Changes in diagnostic practices, investigations and therapeutic interventions—pharmacological, psychological, and social—have brought psychiatric practice out of the asylums and into the community in many countries but not universally. Early intervention has gone from being an intriguing innovation to standard practice in many countries. However, delivery of these services depends upon resources available and in many countries around the world these remain aspirations.

Psychiatry in the first quarter of the 21st century is at the cusp of major changes. We are beginning to understand more about the structures of brain and its development and function—and, more importantly, the impact of social factors on these processes. Recent investigations into the interactions between the immune system and the brain and optogenetics promise new knowledge of mechanisms and new treatments. Psychopharmacogenomics can enable clinicians and researchers to profile the pharmacodynamics and pharmacokinetics of individuals in order to develop and deliver more targeted interventions.

The world is becoming more connected, and psychiatry is no exception to this. On the one hand, the rise of the global mental health movement has highlighted the importance of mental health but on the other hand, the movement's weakness lies in the perception that it is again an example of the so-called Western Anglo-centric countries dictating to the rest of the world what needs to be done, ignoring different cultural models of expressing distress and help-seeking. Another observation is that the global mental health movement needs to put much more emphasis on sharing examples of good clinical practice than it has done so far. For globalization and urbanization present not only challenges, but also an opportunity to share knowledge. Furthermore, this interconnectedness both fuels and is enhanced by the growth of digital technology, whose effect on mental health is uncertain, and whose impact on the delivery of treatment might be immense.

It is time to look at where psychiatry has been, where it is now, and try to imagine its future. What will psychiatrists do, how will they do it, and what will they need to know in the next few decades? Who will psychiatrists treat? How will this be delivered and financed? How will psychiatry's relationship with society change? How must mental health laws adapt to accommodate this? Will psychiatry be able to go digital, and if so, how? And how will psychiatrists of the future be trained?

To answer these questions, the World Psychiatric Association and The Lancet Psychiatry have commissioned a team of mental health professionals, researchers, and service users to write and review this new Commission on the Future of Psychiatry. The following pages are intended to stimulate thought, debate, and the change necessary for psychiatry to fulfil its potential as an innovative, effective, and inclusive medical specialty in the 21st century.

Part 1: The Patient and Treatment

Demographic and societal factors affecting the Patient

The future of the psychiatric patient in the health care system will be influenced by many factors, several of which will be discussed in other sections of this report. One of the most critically important variables is the availability of and access to psychiatric care. WHO data[1] show vast discrepancies in resources across countries, with, for example, nearly 100-times variations in the per capita availability of psychiatrists.[2] Within specific countries, substantial geographic variations occur in availability of mental health clinicians and facilities as well as in specific treatment modalities such as pharmacological, psychotherapeutic or psychosocial interventions, or neuromodulation therapies. In the USA, with over 50,000 psychiatrists, the highest per capita ratio in the world, and an extensive array of government and privately supported programmes, many subpopulations have inadequate access to any aspects of clinical mental health care including medications. Owing to significant fragmentation compared with the general health system, access is constrained for those living in rural areas and poverty stricken urban cores, and the elderly, children, the homeless, victims of abuse, those in forensic facilities, and members of minority racial and ethnic groups.[3] Thus, it is uncertain whether many of the projections in this section concerning patient care changes in the coming decade will be available to the majority of the global population.

While there is no evidence that the epidemiology of most psychiatric disorders is changing, large-scale demographic and societal changes already underway will affect individual and population mental health. These are illustrated by four such changes, already occurring in Asia and major population centres elsewhere.

First, ageing of the global population will continue due to improved nutrition and water supplies as well as advances in general medical care.[4] The growth in the elderly population means an increase in age-related diseases such as the dementias and late-life depression. Changes in social patterns, with multiple generations of families no longer living in the same houses or even towns, will alter the role of the elderly in the community and the way they are valued and cared for. The increased demands for caregiving by younger family members for the older generations will be less likely served when those younger generations live far away. These changes impair the quality of life of the elderly and can lead to poor mental health outcomes.[5] Moreover, the high prevalence of coexisting

physical conditions, such as sensory loss, will exert a greater effect on mental health through the loss of self-esteem and independence.

Second, an increasing percentage of the world's population will be living in urban areas. Urbanization affects mental health through the influence of increased stressors and factors such as an overcrowded and polluted environment, high levels of violence, access to illicit drugs, and reduced social support.[6] For example, lower paid urban workers often live in crowded spaces with poor basic sanitation, food supplies, and shelter, as well as a lack of basic governmental and social support services.

Third, population disruption and migration due to natural and manmade disasters, are at the highest level in recorded history,[7] with associated adverse effects on mental health.[8] The stresses of forced emigration, physical, social, and psychological, have taxed all societal systems.[9] These stresses stem not only from factors directly related to migration or living in refugee camps, but also from living under the authority of individuals with, most often, a different culture, language, and traditions.

Fourth, the rapidly expanding use of electronic communications in our "digital" world has led to concerns about the effect of more constant digital connectivity on individuals, such as a shorter attention span, interpersonal relationships, and society (see section on Psychiatry and the Digital World). Internet Addiction Disorder, while not listed in DSM-5, is of increasing concern in adolescents and young adults. There is a strong association between Internet Addiction Disorder and depression[10] though the causal relationship has not been determined.

Culture and Patient Care

Culture and Diagnosis

With the vast migration of populations in recent decades, attention to cultural factors in understanding mental processes for both individuals and groups, and in psychiatric practice will continue to grow in importance. Diagnosis will continue to be among the most complex issues in psychiatry and will have to take increasing notice of the influence of culture.[11] Cultural variations must be taken into account in the clinician's understanding of the context and meaning of the language of patients, and this appreciation must be a basic component of every diagnostic interpretation. Understanding what patients are communicating to the clinician requires an awareness of the impact of the "cultural relativism" of language and other variables and will produce more effective decision making about normality and psychopathology.[12]

The migration of human populations has modified local and regional cultures, but culture continues to be influenced by a multiplicity of factors, and global cultural diversity will persist. Assessment of race and ethnicity, language (verbal and non-verbal), religious beliefs, traditions,

values and moral thought, family and gender issues, social relations, financial philosophies, and economic status will continue to be key elements to consider when formulating a diagnosis.[13]

These and other cultural variables affect areas such as help-seeking patterns, causal attributions, explanatory models of illness, and severity assessment. The cultural elements inserted in several sections of DSM-5 are only the initial step in a conceptual and practical consolidation of culture in the diagnostic process.[14] The study of Idioms of Distress and Cultural Syndromes in various diagnostic schemes should continue to be refined and implemented in a way that can be used more effectively around the world.[15]

DSM-5 developed the Cultural Formulation Interview as a novel 16-question measurement instrument of cultural diagnostic components to be used during an initial interview. This was field tested for utility, and is supported by 12 supplementary modules to broaden and deepen the collected data.[16] Thus, the Cultural Formulation Interview can serve as a platform for further development.

Culture and the therapeutic alliance

Understood as the common and shared effort of physician and patient aimed at the alleviation, healing or cure of ailments, the therapeutic alliance entails knowledge, attitudes and skills that, if appropriately used, will result not only in the stated objectives but also in the prevention of relapses, and the accomplishment of a better quality of life for the individual and the community. The therapeutic alliance is moderated by both the knowledge base and skills of the clinician, and the influence of culture on the system of care, and the cultural background of the physician and the patient. There is increasing attention to the role of these factors in the development and maintenance of a productive therapeutic alliance.[11,17]

As an individual, the physician absorbs the general principles and particular features of the culture of medicine as practised in his or her location and filtered through his or her own cultural background. The patient's cultural background brings with it conceptions of trust, respect for authority figures, dignity, self-image, self-esteem, and family-nourished beliefs and attitudes, that the physician needs to appreciate to develop a positive and productive therapeutic alliance. In psychiatry, the therapeutic alliance is also affected by prejudice, stigma, including self-stigmatization,[18] and discrimination—powerful cultural forces in most societies.

Culture and psychiatric treatment

Cultural competence is important not only in diagnosis and the therapeutic alliance but also in the formulation and execution of a treatment plan.[11] The patient's culture might influence his or her willingness to engage in the type of emotional self-disclosure that is essential for all forms of psychotherapy. Cultural and spiritual beliefs might influence the patient's perception that there is an internal locus of control of their thoughts, emotions, and behaviours. Both these factors would

influence, for example, a prescription for psychotherapy and its implementation. Thus, the development and use of culturally sensitive psychotherapies and psychosocial interventions should be encouraged. In some cultures, pharmacotherapy prescription might be affected by traditional medicinal treatments and potential conflicts with traditional healers which must receive particular attention from the psychiatrist.[19] The cultural aspects of all components of the psychiatric care system should receive much more emphasis in the coming decade, with resources devoted to training, research, and clinical system development aimed to better equip clinicians to provide excellent culturally competent care.[20,21]

Culture and Stigma

Culturally influenced discrimination against those with psychiatric illnesses, their families, and those who provide treatment for them has been known for centuries in essentially every society or culture. The discriminatory results of this stigmatization have influenced media portrayals of families of and patients with psychiatric disorders, and of both clinicians who provide mental health care and the settings in which they work. This stigmatization in modern times has affected not only the place of psychiatry in the health care system, but also governmental willingness to support adequate facilities, nondiscriminatory policies regarding access, training of clinicians, and reimbursement for psychiatric care compared with all other components of the health system, even in a well developed health care system as in the USA[3]. Further, there is good evidence that significant stigmatization exists at present among other physicians.[22]

As Fink and Tasman wrote in 1992, "Patients' willingness or unwillingness to be treated, the inability to pay for treatment, and the unwillingness of people to have mentally ill persons living near them or working in their companies have combined to form the most powerful antitherapeutic forces that mentally ill individuals face."[18] While there is current impressionistic information from many clinicians around the world that stigma in the psychiatric sphere of concern has been diminishing in recent decades, there is little formal psychiatric research devoted to this topic. It still seems clear that culturally influenced stigma has an adverse impact on patients' willingness to seek care.[23] Programmes to reduce stigmatization have been implemented in many countries in academic institutions, by psychiatric and other mental health related organizations, and by governments, but these efforts are often local or regional in scope and impact, resulting in a dearth of study of national or cross national assessments of stigma reduction. This lack of data makes informal conclusions impossible to verify.

Given the tumultuous state of the world, it is difficult to predict whether there will be available adequate resources to foster growth of sorely needed multifocal strategically targeted programmes in the coming decade. In addition, cultural change, which is necessary for widespread changes in attitudes and behaviour regarding mental health, comes at a very slow pace in most conditions. Both

these factors suggest that a dramatic reduction in stigmatization is unlikely to occur in the near future, with most changes likely gradual, modest, and geographically diverse.

Diagnostic Assessment

Across medicine, diagnosis first involves gathering multiple types of information from different sources (eg, history, examination and investigations), which is then considered, weighted, and integrated by the clinician who makes a decision on the likely diagnosis. Changes in psychiatric diagnostic practice could involve alterations in the *way* initial information is collected, in the *type* of information that is gathered and used and the *way* data are integrated into a diagnostic decision.

Typically, the diagnostic act begins with the clinician gathering information reported by the patient or others who know him or her well. Across medicine, the need to listen carefully, elicit relevant information, empathise and observe remains crucial for any successful diagnostic assessment.

The psychiatric formulation is broader than diagnosis alone. It takes into account the social context, contributory risk and protective factors, and developmental change. These are relevant to devising the management plan, selecting appropriate treatments, and predicting adherence and prognosis. This approach is unlikely to be replaced by a purely biological or investigative approach and in its ideal form should continue to be based on an integrative bio-psycho-social-cultural formulation.

Given the global scarcity of resources, the level of direct clinician contact with a patient is likely to change in the next decade; few if any places have sufficient clinicians with enough time to meet population demands and needs. Mobile, internet, and telemedicine technologies already enable remotely administered, online diagnostic interview (eg, www.dawba.info) and cognitive testing that are used in research and some clinical settings. Such approaches could enhance task-shifting from physician to health-care worker in LMIC.[24]

One of the holy grails of clinical psychiatry is laboratory tests to assist in diagnostic assessment—a routine component of diagnosis in most other medical specialties. Our present definitions of mental disorders are based exclusively on subjective signs and patient-reported symptoms that are prone to recall error and misinterpretation. Laboratory tests have potential advantages, including being more objective[25] and facilitating the detection of mental disorders in primary care settings where the use of laboratory tests is routine.[26]

Unfortunately, although one of the goals of the DSM-5 was to make the diagnostic system be based more on the underlying pathophysiology of mental disorders than on their symptomatic presentations,[27,28] no laboratory tests or other biomarkers were deemed to be sufficiently sensitive

and specific to warrant their inclusion into the DSM-5 diagnostic criteria sets for any of the mental disorders.

It has been suggested that one of the causes of the failure of studies searching for useful diagnostic biomarkers is the erroneous assumption that the DSM categories represent true disease entities instead of diagnostic constructs created by expert consensus.[29,30] The US National Institute of Mental Health (NIMH) has developed the Research Domain Criteria (RDoC) project to promote "research to validate dimensions defined by neurobiology and behavioural measures that cut across current disorder categories and that can inform future revisions of our diagnostic system."[31]

RDoC-inspired insight into the relationship between biological processes and psychiatric symptoms might allow for the incorporation into psychiatry of clinically useful, diagnostically specific biomarkers over the next decade. To facilitate the incorporation of such measures in diagnostic practices, the DSM revision process is moving from one that permits updates only at fixed intervals to one that allows for the incorporation of empirically based changes on a continuous basis.[32]

A more likely change in diagnostic assessment practices will be the increased use of measurement-based care in routine clinical practice. Measurement-based care involves the use of clinician-administered and self-report scales for disease assessment, tracking, and treatment to achieve optimal outcomes.[33] Although measurement-based care already forms the bedrock of the management of chronic medical conditions such as diabetes and hypertension, its utilisation in the assessment and monitoring of psychiatric conditions is limited,[34] despite calls for its widespread adoption by psychiatric clinicians.[33,35]

Primary care physicians routinely assess basic health measurements such as pulse, blood pressure, and weight and regularly conduct a "review-of-systems" to enquire about the most common problems that can affect various body systems. Psychiatry would benefit from a standardized tool kit of psychiatric measures that would both provide a picture of the individual's mental health status and facilitate monitoring of specific conditions.

To promote the routine clinical use of psychiatric measures, the developers of DSM-5 proposed the addition of a dimensional component to the diagnostic categories. This dimensional component took two forms: cross-cutting symptom measures that would function as a psychiatric "review-of-systems" and disorder-specific severity measures that might be useful in making treatment decisions and monitoring treatment response. The cross-cutting symptom measures are self-administered by the patient and offered in two "levels." Level 1 measures are a comprehensive set of screening questions with 23 questions covering 13 psychiatric domains for adult patients and 25 questions covering 12 psychiatric domains for child patients. Adult domains include depression, anger, mania, anxiety, somatic symptoms, suicidal ideation, psychosis, sleep problems, memory, repetitive thoughts and behaviour, dissociation, personality functioning, and substance use. Child domains omit

memory, dissociation, and personality functioning, and instead include inattention. Level 2 questions are asked for selected domains in which a level 1 symptom is present at a mild or greater intensity. Many disorder-specific severity measures were also proposed for DSM-5: most were based on symptom frequency or intensity and some (eg, the PHQ-9)[36] were based on the diagnostic criteria themselves.

Although DSM-5 field testing of the cross-cutting measures in academic settings indicated that most of the scales had good to excellent reliability[37] and suggested that self-selected participants in the DSM-5 clinical practice field trials found them useful,[38] evidence establishing the feasibility of their widespread implementation in clinical practice settings was lacking. Ultimately, this proposed dimensional component did not become part of the official DSM-5 diagnostic system but was relegated to the "Emerging Measures and Models" section. This demonstrates the paramount importance of considering feasibility of implementation and user acceptability in the adoption of diagnostic assessment practices.[39] Computerized implementation of dimensional scales, especially self-report measures, has the potential to substantially improve the availability and ease of use of dimensional measures. Improvements in technology, as well as the steadily increasing use of computers in clinical settings over the next decade, will facilitate their implementation in routine clinical practice. Increased pressure for clinicians to demonstrate quality care by measuring patient improvement will also incentivize their more widespread use.

Concerns about litigation and complaints, as well as patient-generated self diagnosis (using internet-based information), might also stimulate the development of more standardised decision making tools. These might function more as an adjunct rather than a replacement for clinical judgment, because of the complexity of the clinical data and the situation in which the formulation is developed.

Genetic information, when combined with other risk data (eg, family history, task-based cognitive data) might also be helpful for estimating risks of future adverse outcomes, for example conversion to Alzheimer's disease.[40] Future examples could include risk estimation for the conversion of subgroups with psychotic-like symptoms or high-risk mental states to full blown psychotic illness, adolescent depression that is likely to convert to bipolar disorder, and child neurodevelopmental disorder subtypes that develop into schizophrenia. Identifying very high-risk sub-groups becomes worthwhile when it alters clinical management. A clinician who knows an adolescent is at elevated risk of psychosis or bipolar disorder might be more cautious about prescribing a stimulant medication for ADHD or an SSRI medication for unipolar depression.

The completion of the first revision in 25 years of the Mental and Behavioural Disorders chapter of the International Classification of Diseases over the next several years will affect diagnostic assessment globally, as most countries use the ICD mental disorders classification.[41] Proposed

improvements include a more clinically useful scheme for laying out the classification, clinical descriptions, and diagnostic guidelines whose format and content are more consistent across diagnostic categories, a dimensional approach to personality disorder classification, and several new disorders, such as Prolonged Grief Disorder.

Diagnostic assessment based on internationally recognised nosological systems a decade from now will probably be similar to diagnostic assessment as it is today. Clinicians will continue to rely on a careful personal assessment of signs and symptoms to make psychiatric diagnoses, although some diagnostically useful biomarkers might become available and incorporated into a future interim revision of the DSM.[40,42] The most likely change over the next decade will be more widespread use of dimensional assessments, facilitated by increasing penetration of computer technology into psychiatric clinical care.

Treatment Planning and Implementation

The centrality of the therapeutic alliance

Despite anticipated advances in the diagnosis and treatment of mental disorders, none of the innovations to be discussed is likely to displace the centrality of the doctor–patient relationship as the cornerstone of clinical care. This point is vital to the definition of the field, but more importantly serves as part of the healing processes. The doctor–patient relationship is not a placebo but an essential part of all clinical care. New interventions, such as psychopharmacological and neuromodulation treatments, have all been provided within the context of the therapeutic relationship. Clinicians seem persistently forced to rediscover what research has repeatedly reaffirmed, that quality treatment is not about compliance; it is based on alliance.

In recent decades, the nature of the therapeutic alliance has been altered by several factors. For all medical treatment, during much of the 20th century, with the rise of large institutions that provide a substantial component of clinical care, the patient had to travel to the doctor's office. From the 1960s, mobile clinical outreach teams developed in high-income countries to bring care to the patient, although usually focused on crisis intervention.[43]

Telepsychiatry, using high speed interactive video conferencing, has shown that successful assessment and treatment do not require that both the patient and the clinician are in the same physical location (see the section on Psychiatry and the Digital World).

The availability on the internet of information about psychiatric illnesses and their treatments, although not always accurate, has increased patient autonomy, exerting a democratizing effect on the hierarchical doctor- patient relationship. Excellence in psychiatric care in the coming decade, therefore, will rely on psychiatrists' skill in incorporating the patient and their family in clinical decision making.

Personalized or precision medicine in psychiatry

Personalized or precision based medicine aims to refine prevention and treatment.[42] For prevention, genomic and other biochemical or physiological analysis in conjunction with assessment of environmental and developmental influences, should provide more robust identification of individuals at risk for psychiatric disorders. Because of the intricate interactions in any individual among biological, developmental, and environmental and social factors, accurate prediction is at present not possible. For example, although a family history of schizophrenia or bipolar disorder increases risk, a priori prediction of whether a specific offspring will be affected is currently not possible. Further, while it is also known that living in poverty puts an individual at risk for many illnesses, including psychiatric disorders, we cannot predict with precision what, if any, disorder will emerge in a specific person.

Second, personalized medicine aims to match a patient with the most effective treatment. Pharmacological treatments for major mental disorders are suboptimal and often only a minority of patients achieve remission. It might be possible to determine which patient will experience a severe side effect from a specific medication, as is being explored using cytochrome P450 allele assays and other genetic characteristic to identify people who metabolise these drugs slowly.[44,45] Imaging analysis might identify those patients more likely to respond to psychotherapy than medication[46] or to medication as a monotherapy when significant early life stress is a component.[47] Innovative psychosocial interventions could be based on virtual reality programs,[48] and refinement of internet-based psychological therapies that permit a participant to proceed at his or her own pace to acquire desirable psychological resources. Digitally based suicide prevention programs are being evaluated.[49]

Despite all of the conversation about a biopsychosocial approach to patient care, the field remains fractured between reductionist viewpoints that arbitrarily dichotomize the mind and the brain (Gabbard and Kay 2001) and much more complex and integrative models.

It is difficult to conceptualize how any precision based intervention can be provided outside of directly interacting with a patient either in person or through a teleconference type interaction. Theoretically, patients could be given a computer-generated list of results from genomic analyses, but the comprehensive approach to identification of risk factors and appropriate interventions, for example, requires a continuous care experience if it is to be effective and patient centred.

There will undoubtedly be limitations to and uncertainty in personalized psychiatry. Whenever large amounts of data are collected through multiple genomic analyses, there will be the danger of lumping patients into very large cohorts and moving away from an individualized approach to maximize reproducible findings thereby raising the question of the validity of this approach.[50]

Areas of promise

Safer forms of drug delivery, especially in the treatment of substance abuse disorders, might improve treatment outcomes through the use of implantable drug reservoirs that will last for a year or longer.

Nanotechnology might also contribute to more effective treatments. Obviously such longer duration treatments must be administered and monitored within the therapeutic relationship.

The role of inflammatory processes in mental disorders is under investigation and holds great promise.[51,52] Advances in stem cell therapy have enabled pluripotent cells to be directed towards defective brain areas with the aim of improving neuronal circuitry.[53] This is a more distant goal for psychiatry: even if achieved, such a procedure should always be considered by doctor and patient in collaboration.

Neuroimaging will continue to document new regions of the cortex heretofore undefined by traditional cytoarchitectural studies.[54] This will permit greater appreciation of the connections between different brain areas and their interdependent characteristics and might provide insights into autism, dementia, and schizophrenia.

New forms of neuromodulation might allow patients to administer treatments inexpensively and outside of the physician's office and hospital. These new treatments might perhaps have fewer complications and risks than are often associated with, for example, ECT. However, neurologists have cautioned against experimentation of do-it-yourself neuromodulation activities with direct current stimulation, which once again speaks to importance of the treatment relationship.[55]

The importance of subjectivity

An untoward effect of the enthusiasm about the promises of scientific advances has been neglect of the value of the psychiatrist's subjective assessment of the patient. The subjective data about our interactions with patients will always be critical to excellent clinical care and remain as sound and data based as any laboratory test or imaging procedure. The significance of the clinician's subjective responses during assessment and therefore to the understanding of the patient's illness narrative and treatment has been reaffirmed through the recent discussions of uncertainty in clinical care. The psychiatrist's capacity to tolerate uncertainty, as is true of all physicians, is the antidote to a reductionist biomedical model that undermines the role of the physician. It also balances the unhelpful aspects of medical technology and its indiscriminate application.[56] This is certainly true of the failure of the electronic medical record to live up to its promise of enhancing care and is equally relevant in assessing the premature expectations of precision medicine.

The enduring centrality of psychotherapy and psychotherapeutic skills

The affirmation of uncertainty as a core characteristic of the physician is critical to the question of the acceptance of the efficacy of psychotherapy as a monotherapy and in conjunction with somatic treatments. Research into psychotherapy effectiveness using modern research methodologies was delayed compared with biological research, but has been growing for the past several decades.

The ongoing expansion of clinical research on psychotherapy interventions, both alone and in conjunction with other treatments, should lead to broader acceptance of the efficacy of

psychotherapy. Unfortunately, the paucity of resources available to deliver psychotherapeutic treatments and the expense and time required to train skilled psychotherapists will substantially constrain most patients' access to this form of treatment. Owing to the scarcity of high quality psychotherapy research, psychiatrists are still unable to predict for which patients psychotherapy will be effective, nor which form of psychotherapy will be most appropriate for a specific patient.

The abuse of private or public personal authority and power, and its frequently associated psychological or economic deprivation, constitute a major source of the enduring intergenerational transmission of the potent and often devastating effects of psychological trauma to adults and children. Although neurobiological factors contribute to this human vulnerability,[57] establishing emotionally corrective therapeutic relationships with those who have been mistreated remains the most appropriate way to affirm the experience of the abused and maltreated and conferring hope for recovery.

In the near future then, it is unlikely that precision medicine will lessen the role of the therapeutic relationship and psychosocial interventions. Treatment of individuals who suffer trauma, endure the effects of social dislocation, and experience developmental vicissitudes will require skilled clinicians with the ability to provide psychotherapeutic interventions with the context of a strong and positive therapeutic relationship.[58]

Subspecialisation in psychiatric practice

The exponential increase in the psychiatric knowledge base and the literature in specialised aspects of patient care has necessitated and driven the rise of subspecialisation. In well resourced countries, the public has a high expectation of the standard and quality of health services. This expectation includes being treated by clinicians with expertise in a well defined field related to their illnesses. Both public expectations and the advances in the profession foster a rising standard of patient care. On the societal level, as well as for individuals, there are benefits of having clear standards in areas of subspecialisation.[59]

On the other hand, there are potential problems with progressing toward increasing subspecialisation, even in high-income countries. First, there are the costs of developing a subspecialty and providing services by subspecialties, as well as creating and maintaining certification examinations.[59] Patients might have to pay more for seeing a subspecialist. Subspecialisation raises concerns about fragmentation of care,[59] such as has occurred in general medicine. Comorbidity is very common in psychiatry, and the trend towards increasing subspecialisation could result in a disease-based model of delivering care, with patients finding themselves consulting several subspecialists. Such eventualities could also give rise to the development of primary care psychiatry, wherein general psychiatrists are viewed as having less expertise than their subspecialist colleagues.

In low-income and middle income countries, with less well organised systems of health care and a lower expectation of centres providing tertiary care, a public drive for increased psychiatric subspecialisation is less likely. The scarcity of psychiatric and other mental health resources in such countries, as well as the cost of implementing a new system of psychiatric care, severely inhibit the likely implementation of subspecialisation on a broad scale.

The extreme shortage of psychiatrists in low-income and middle income countries has resulted in an enormous treatment gap for people with mental disorders.[60] Psychiatric centres in these countries are examining a different model of mental health service provision involving task-shifting. In one model, non-specialist health workers are trained to deliver interventions for mental disorders and dementia. In this type of system, psychiatrists function as a public health practitioner.[60] It has been proposed that mental health should be integrated with the care of other chronic diseases and in primary care to provide more efficient coverage of mental disorders.[61] Such an integrated care approach might reduce the pressure for subspecialisation.

Even in high-income countries countervailing pressures against subspecialisation are likely. As an example, Old Age Psychiatry has been very well developed in the UK since the 1980s. In recent years, however, there has been a move towards ageless services where people of all ages are treated by the same clinicians. There were several possible reasons for this shift to ageless services: one was that combining teams would save money.[62] The Faculty of Old Age Psychiatry of the UK Royal College of Psychiatrists lobbied the government intensively to advise against this move to ageless services, which may only have slowed down this trajectory of clinical system changes.[62]

In the coming decade, pressure for increased subspecialisation is likely, though with geographic and economic diversity in a dynamic process and the actual development will differ by country. In low-income and middle income countries, the needs and priorities in mental health care and the importance of subspecialisation are very different from those in high-income countries, but even in a country like China, which will be used to illustrate the countervailing pressures, there is a strong force toward increased subspecialisation.

China and India account for one third of the disease burden of global mental, neurological and substance use disorders.[63] However, China has only just over 20,000 psychiatrists for 1·3 billion people, ie, 1·49 psychiatrists per 100,000 population, whereas the USA has around 16 psychiatrists per 100,000 people.[1] Although the National Mental Health Working Plan of China has set a target to increase the number of psychiatrists to 40,000 by 2020,[64] it is uncertain that this goal can be achieved because of too few training programmes, even with an abbreviated length of training. Further, the distribution of psychiatrists is very uneven in China, with few psychiatric facilities in the rural areas where currently about half of the population live.[64]

The population in China is ageing rapidly, with 25% of the population estimated to be aged 60 years or above by 2030, suggesting strong pressure to develop Old Age Psychiatry specialists. Other subspecialties are being established in China, including Child Psychiatry, Addiction Psychiatry, Forensic Psychiatry, and Consultation-Liaison Psychiatry. These subspecialties are being implemented in urban hospitals, but are absent in rural areas. Quality control of practitioners is difficult since there are no certification examinations for the various subspecialties. As the major cities have become increasingly affluent, public expectation and demand has grown for more specialised services. Therefore it is likely that in the coming decade, there will be increased pressure for subspecialisation in urban China. This will serve as an impetus for improved training of a vastly increased number of psychiatrists and better clinical services and raised standards of patient care. In rural China, integration of mental health into primary care medical services might be more likely than increased numbers of psychiatric subspecialists.

Part 2: Psychiatry and Health Care Systems

In most countries, psychiatry has a clinical focus – the emphasis is on individuals and individual disorders and health problems, rather than the mental health needs of populations. The absence of a public health perspective is one reason for the huge treatment gap in most countries.[201] WHO estimates that the treatment gap for depression and common mental disorders is more than 75 per cent in Low and Middle Income Countries (LMIC).[202] Solutions to address this treatment gap require the adaptation and use of public health models to deliver mental health care in many parts of the world.[203]

The knowledge and expertise needed to respond to these requirements go beyond the traditional training and clinical background of psychiatrists. Hence there is a need to emphasise public health in training curricula and certification processes.[204,205]

However, a 'one-size fits all' philosophy is unlikely to work – there is no universal public health model of mental health service delivery which works in all countries. Effective models of care provision are crucially dependent on the availability and type of human and financial resources in a particular country,[206–209] organisation of health care in a country, and specific mental health needs of the country.[210]

The funding of health care systems has an important influence on the practice of psychiatry and the provision of psychiatric care, particularly preventive and health-promoting aspects of psychiatric care.[211] There is a continuum from predominantly publicly funded and publicly delivered health care systems (eg, NHS in UK) to predominantly individual payee-based, privately delivered health care systems (eg, India, US). While specific models may vary between countries, there are commonalities

when considering the place of psychiatry in the health care system in a country and this paper is focused on these commonalities.

Health care systems in many LMIC are either poorly developed or dysfunctional.[212] The Sustainable Development Goals (SDGs),[213] which will require efficient delivery mechanisms for achieving health goals and are likely to bring a renewed focus on improving health care systems,[214] represent a huge opportunity for psychiatry. Psychiatrists need to advocate effectively for the inclusion of psychiatric services and to prevent marginalization of mental health issues in the health care system.

Organization of mental health care

WHO has developed a model for optimal mixture of services[215] (see figure 1). The WHO model is based on a premise that no single service is likely to meet the service needs of an entire population. This model provides a relationship between different service levels (primary, secondary and tertiary) and should be used when planning services in all countries regardless of their resource levels. It is unlikely that services in any country, especially LMICs, actually approximates to this model of service provision. Irrespective of the country situation, any efforts at improving the service provision model requires a good understanding of the existing mental health system and building, reshaping and decentralizing the existing system to meet local needs.

Apart from an optimal mixture of services, there is a need to consider the following when planning mental health services for a population:

1. Episodic versus continuous care: Health care especially primary and secondary health care in many countries is organised around the treatment of communicable diseases which presumes the need for treatment of an acute episode followed by remission or recovery and no care requirement until the next episode of illness in the same individual or another individual. Episodic care models however poorly address the needs of many persons with severe mental illness who are likely to have continuous illness with episodic exacerbations. Their care needs are better addressed by continuing care models which take the long term nature of their illness into account.

2. Needs led versus service led models of health care: In many countries, services are organised from a managerial perspective of service providers rather than considering patient needs and abilities. It is difficult for many persons with mental health problems to navigate separate health, mental health and social care services which are organised in vertical silos with their own criteria and priorities for who they serve. A needs led model of service delivery will necessarily take user needs into account and provide a seamless flow within health services and between health and social services.

Pathways to care

A common characteristic when looking at pathways to mental health care is the glaring absence of such pathways in many countries, particularly in LMICs.[217] The arrival of a patient to the psychiatrist may not always be straightforward and direct. A common denominator in high-, middle- and law-income countries is the possibility of delay – sometimes very long – before a person reaches the specialised professional.[218] Obstacles to ensure proper care in the shortest possible time include:

- In middle and low income countries, in rural areas, and/or in specific communities in high income countries, persons with mental health problems are likely to seek help of a traditional healer **[A: or religious adviser]** as a first option. If the symptoms continue or get worse – after many months in many cases – they ultimately reach a psychiatrist or another mental health professional, with an accumulation of negative consequences of delayed treatment.[219]

- When the only available services are old-style mental hospitals, frequently on outskirts of main cities, with a negative image of poor quality care persons with mental health problems are less likely to access them unless severely ill or with disabilities.[220]

- Stigma and discrimination can result in absent or inappropriate services at community level worsening the access to possible pathways to care.[221] Particularly in children and adolescents the relation between stigma and help-seeking is traditionally underestimated.[222] Gender stereotypes also shape the path to specialised care in different ways for men and women.[223]

Despite these barriers, evidence indicates that the implementation of care management processes and collaborative chronic care models can facilitate pathways to care and ultimately improve the outcomes for chronic mental illnesses.[224] Some strategies to reduce the delay for persons with mental health problems in accessing proper services are outlined in panel 1.

Psychiatrists in primary, secondary and tertiary health care

Until quite recently, psychiatrists' activities and psychiatric practice were largely confined to old-style mental hospitals. With increasing evidence of negative effects of institutionalization[226] and of improvement in negative symptoms and social network upon resettlement of long-term hospitalized patients into community care,[227] mental health care in high income countries (and some LMIC) has moved out into the community and into the general health system.[228] Patients with mental health problems are not necessarily now treated at a mental health setting but might be seen by a psychiatrist in a general hospital, a community clinic or at home[228] and in unfortunate circumstances, on the streets with homeless persons with mental illness.[229]

However, due to various political, cultural, and healthcare structural reasons in some countries stand-alone mental hospitals continue to remain the only mental health care provision. While some of these hospitals have undergone substantial improvement in hospital environment and governance structure, many are still plagued with problems of institutionalization, in-patient suicide, and human

rights violation.[230] It is of note that continued dominance of large mental hospitals in many countries does not facilitate evidence-based interventions, such as services delivered in decentralized locations, integrated within the community, and supported by appropriate referrals to secondary and tertiary care systems.[231]

The change in care model in some countries inevitably needs to be accompanied by a radical change in the relationship between psychiatrists and other mental health professionals from a paternalistic model to a new team work model. In the past, psychiatrists were considered the core professional group providing medical treatment while other mental health professionals were merely expected to execute treatments prescribed by psychiatrists. However, in the new model where mental health interventions for common mental disorders are increasingly delivered in primary care sector by other health professionals, psychiatrists now play the role of trainer and supervisor of these health professionals in implementing evidence-based psychosocial interventions as well as in deciding on the appropriateness of referrals to secondary or tertiary psychiatric care. Given the limited resources for mental health care in LMICs (panel 2 **[A: Panel citation needed]**) there is also a trend to utilising informal human resources for example, peer support, volunteers, family members and caretakers (eg, Basic Needs). Thus, psychiatrists need to be trained not only in diagnosing and managing a wide variety of mental health problems but also in supervising, training and disseminating relevant psychiatric skills and knowledge to other health and non-health professionals.[232]

Psychiatrists working in secondary care need to work in general hospitals or community settings and work with different professionals including community nurses, counselors, social workers, or even housing managers. With increasing evidence that many patients with mental health problems have increased rates of untreated medical comorbidities including hypertension and obesity,[240] some of these related to the side-effects of newer psychotropic medications,[241] as well as the fact that persons with chronic medical illnesses have increased prevalence of mental illnesses,[242] psychiatrists need to be prepared to work closely with general health specialists. Psychiatrists also need to be trained in diagnosing and managing common communicable and non-communicable diseases so that they are equipped to manage common medical problems in patients with mental illness under their care.

Tertiary care services like specialised services for eating disorders, severe personality disorders, and forensic psychiatry are equally necessary but poorly provided in most countries.[243] Without appropriate secondary and tertiary care services, there is a real risk of patients with complex needs being trans-institutionalised or incarcerated in correctional institutions like prisons.[227] Implementing a stepped care model requires an adequate workforce of trained mental health specialists including psychiatrists, change in training curriculum for primary care and mental health care staff in the

community, and a change in health care delivery model. Poor government commitment, lack of mental health policies, and lack of legislations for respect of human rights are some major barriers to the implementation of such improvements in mental health service delivery.[231] Psychiatrists working in the tertiary sector are also expected to take up a role as leader of a multidisciplinary team with specialised skills in managing complex mental disorders (eg, eating disorders, severe personality disorders). Apart from having highly specialised knowledge and skills in diagnosing and managing such patients with complex needs, they need leadership skills in influencing and uniting various mental health professionals to work as a cohesive team, especially during crises for patients under their care. The above knowledge, skills and attitude of working with different stakeholders in the community and in the general medical health settings need to be cultivated and imparted during undergraduate and graduate psychiatric training.

Psychiatry thus needs to be integrated both vertically and horizontally into the general health system. Models of integration focused on hospital-based inpatient and outpatient care alone do not ensure access and continuity of care, while exclusively community-based services cannot provide comprehensive treatment. Hence a balanced care model is the best choice, which requires a revision of the roles of mental health professionals.[244] Mental health professionals including psychiatrists could work directly in secondary and tertiary services, providing consultation-liaison for complex cases, training and supervising primary care staff to augment their ability to identify and treat people with mental illness, and assessing and treating outpatient and inpatients who cannot be managed in primary care.[245] Such balance requires collaborative linkages with colleagues from different specialties[246] and close interactions with other sectors beyond health,[247] including a much more broadly defined social care sector, for instance social welfare, education, and justice.[248]

Governance and leadership and coalition building

The change in the psychiatrist's clinical role over the past two decades as part of deinstitutionalization worldwide,[249,250] requires that they engage in regular interactions with health authorities and other professionals, to promote and design new policies and programmes and to contribute to the search for additional financing.[251] (See Training section) It also requires reorganization of services and development and dissemination of new guidelines and procedures to facilitate collaboration among its multiple components.[252]

A psychiatrist will have to build alliances, learn to work as part of a coalition with other health professionals, and alter the traditional isolation of the psychiatry.[253] Working with others helps overcome the fragmentation of services provided to patients with diverse needs, and also contributes to reduce the isolation and stigma associated with psychiatry.[60,255] Psychiatrists need to appreciate the strengths and values of different stakeholders, articulate their views in a language

free from medical jargon, and lobby, negotiate, compromise with stakeholders with contrasting views to come up with optimal care plans for their patients.

To achieve these changes, appropriate stewardship of mental health and psychiatric care in governments[209] is required. In some countries, a mental health department or unit is part of the organizational structure of the ministry of health, facilitating and ensuring interaction with other units and programs; easing potential collaboration, and integration of mental health related issues with other health sectors and programs. In other countries, particularly in low-resource settings, just one person might be in charge of the mental health programme, highlighting the importance and urgency of coalition building.[256] In all situations, psychiatrists need to be equipped with the skills to effectively lobby, negotiate and promote the values of mental well being of the population to the relevant parts of the government.[243] By working with others, and ensuring that persons with mental health conditions are comprehensively being taken care of, the psychiatrist would be in a better position to reinforce his/her professional identity and related core skills.[257]

Financing and Resourcing

Resources are finite and insufficient to meet all care needs in all health care systems. Psychiatrists, as key stakeholders and advocates, require training to meaningfully engage in relevant discussions to advocate for both absolute increases in resources for mental health care as well as more appropriate re-allocations of existing limited resources. To achieve this, psychiatrists need to widen their knowledge of the health system beyond their own clinical area, of healthcare financing, and of strategies for securing more resources, for example: using the push from large scale actions such as the United Nations' Sustainable Development Goals to secure further funding or changes to the health care/financing system; securing ring-fencing of funds for vital mental health care; or better integrating mental health care into related clinical contexts that are better recognised and resourced[258] (eg, physical health conditions that carry significant mental health comorbidities).

While absolute increase in mental health funding must remain a key goal, making the most of current resources remains an important challenge. Resources should be seen in terms of the value they can provide towards achieving the goals of the health care system, whether that is improving population health, welfare defined more broadly or other societal aims. Such comparisons of value can be made either within a specifically defined population or across populations. For example, consider a situation where psychiatrists successfully secure increased funding for expansion of a mental health care facility. Perhaps another form of care, such as training of community-based lay workers, would have resulted in better outcomes overall, or more equity in access to care. Several effective and low-cost interventions addressing childhood mental health problems could be self-

financing over time with pay-offs to the public sector and elsewhere eg, better educational performance, improved employment/earnings, reduced crime.[259]

Health economics offers concepts and frameworks to help formalise such complex considerations. One approach is the explicit consideration and comparison of both inputs to and outputs from care and the relationship between them, ie, the assessment of efficiency, to direct scarce resources to interventions that both work and are cost-effective. This may necessitate redirecting existing resources from their current use (ie, disinvesting), if they could provide better value elsewhere. Resource allocation can be considered sub-optimal against not only the economic criteria of efficiency and equity, but also a range of other social, ethical and moral criteria. For example, in many areas 80–90% of the mental health budget goes to mental hospitals,[260] even though many consider institutionalisation to be inhumane.[261] Addressing such multi-dimensional issues requires a collaborative approach. Adopting narrow perspectives risks cost-shifting between sectors/budgets, whereby either savings are not felt in the area in which an intervention is provided (which then requires greater cooperation to avoid reduced incentives to provide that care), or savings are felt in the intended area but with an associated increase in costs/burden elsewhere that is unaccounted for.

Implementing and scaling up evidence-based care is a priority for strengthening mental health systems.[202] Relying on arguments without an evidence base, with a low-quality evidence base, or an evidence base without appropriate attention to translation across different contexts can lead to erroneous decisions that benefit neither patients nor the health care system. Therefore, generating new evidence or finding, understanding, critically interpreting new evidence for quality and relevance and using/communicating it effectively is an important skill set in itself. Psychiatrists should be encouraged to learn such a skill-set to enhance both their knowledge and persuasive abilities towards improving mental health systems.

Conclusions

There is a diversity of mental health care models around the world due to reasons of history, culture and availability of financial and human resources. Many of these models are not necessarily evidence based and may not be either effective, efficient or acceptable of service users. There is a broad consensus that WHO pyramid model is a good template for conceptualizing mental health services when contemplating reform or development of mental health services in different countries. Within this broad international framework, individual treatment strategies and the use of human resources (professional vs peer/lay health workers) in different countries will need to respect individual values, culture and the availability of financial and human resources. This diversity should be respected and encouraged to ensure that service provision in different countries is locally relevant. There is an

urgent need to enhance psychiatrists' skills to facilitate and lead these changes in mental health service delivery across the world.

Part 3: Psychiatry and Society

The state and extent of mental health care and the role of psychiatrists within it vary substantially across the world. In most industrialised countries, the last five decades have seen a transformation of psychiatric service delivery. Whilst the exact time of onset, political drivers, pace and outcomes of mental health care reforms in these countries differed, there has been a general shift from institutional forms of care that were centralised and isolated towards more community centred services. Such community centred services tend to be characterised by smaller units in accessible settings, working in close partnership with social care services. Overall, service capacity has expanded. Many more patients in industrialised countries receive some form of mental health care as compared with 50 years ago. The quality of facilities tend to be better, and the number of mental health professionals – including those with a full qualification – has significantly grown. This is a result of increased investment linked to a higher interest in mental health care in these societies.

These changes have affected the role of psychiatrists in the delivery of mental health care. Psychiatrists often work with other mental health professionals in a multi-disciplinary collaboration. The work of psychiatrists has often focused on traditionally medical competencies such as psychopharmacological treatment and physical aspects of mental disorders. Yet, it has been argued that there has been little progress in psychopharmacological treatment in the past 30 years, and psychological treatments are often studied and administered by a growing number of clinical psychologists. This challenges the central expertise of psychiatrists in mental health care, and requires adjusting the focus of core competencies and tasks. A stronger emphasis on social interventions and engagement with societal expectations may be one way forward for the next ten years.

The role of psychiatrists in society

Psychiatrists have a long history as a profession. During the age of enlightenment, the term psychiatry was coined. Psychiatry soon became a separate specialty within medicine and the profession of psychiatrists was established. Thus, there have been medical doctors with the title 'psychiatrist' for about 200 years. The exact function and role of psychiatrists has changed over time and is different across the world.[301] As a profession, psychiatry had a role in regulating itself and deciding on acceptable practice, but it also has been subjected to strong societal pressures, influenced by moral judgment and controlled by legislation. Different groups in society – including the general public, the media, politicians as well as patients and their families – have expectations as to what the tasks and authority of psychiatrists should be. These expectations impact on regulations

for and funding of psychiatrists, shaping their roles and contributing to a 'contract with society'.[302] Roles typically include treatment and care of people who are considered according to the ideas of the time as insane, mentally ill or distressed. Yet, it also includes functions of social control and risk containment of people who are both considered dangerous and mentally ill. The threshold and balance is again subject to values and tolerance prevalent at the time, associated with stigma and perception of fear. This tension between therapeutic aspiration and social control has characterised much of the history of psychiatry and can be assumed to continue for the next ten years.

The role of the psychiatrist has always included the authority to initiate treatment against the will of some patients, although – depending on the exact regulations in different countries – the actual involuntary treatment may require the endorsement of other authorities. Psychiatrists have been given this power by society, commonly in the form of legislation. This implies a duty of protection of both the individual and society, a balance of human rights and prevention of violence that poses a constant challenge and will continue to do so. The pendulum is constantly swinging with different groups in society pulling in opposite directions. On the one hand, there is an emphasis on the rights and autonomy of disabled people and its implications on mental health legislation, which according to some interpretations of the Convention on the Rights of Persons with Disabilities may be incompatible with coercive treatment.[303] On the other hand, there is increasing pressure by some governments and media to report people to the police who might pose a threat to public safety and protect society from potentially dangerous behaviour of people with mental disorders. Both arguments appear to gain ground simultaneously, and these pressures will continue. Psychiatrists find themselves caught in the middle, at risk of being blamed by both camps. They can feel uncomfortable with their role in exerting formal coercion and also with using so-called informal coercion in form of persuasion and other behaviour to influence patients, so that they accept treatment suggestions.[304] The arising tension and uneasiness are part of practice of many psychiatrists and should be explicitly addressed in public and professional debates and clinical training and supervision.

Psychiatrists are considered to have a general societal role as the arbiters of mental sanity. This includes the task to distinguish between mad and bad, and the wider challenge to define mental normality and abnormality. Psychiatrists are challenged to identify which type and extent of mental distress and problems with performance in education and work constitute a mental disorder and which ones do not. The underlying concepts of mental disorders and the specific diagnostic classification systems used are subject to consistent debate and vary across the world. In a globalised world, the question arises as to whether there should be one agreed way of making diagnoses or whether global variation of mental disorders warrants different approaches based on a dialogue with local society. Moreover, as we see increasing immigration, mass movements of refugees and

international travel, psychiatrists may need to be competent to assess mental disorders across different cultural groups and in different societal contexts. This may require an increasing ability to understand and communicate the processes that led to diagnostic categories to support their legitimacy.[305]

The role of psychiatrists in societies includes also a general task to stand up for the rights, dignity and inclusion of people with mental disorders. The task is based on social values and may be seen as essential for the credibility of a helping profession. It involves commitment and activities against the discrimination of people with mental disorders and for their social inclusion.[306,307] Social inclusion requires appropriate legislation securing the rights of people with mental disorders to receive appropriate care and material and practical support – eg, in form of protected accommodation and specific work arrangements - and to participate actively in societies. Yet, formal legislation alone cannot fully prevent social disadvantage and marginalisation. People with mental disorders are more easily integrated and respected if the general population holds positive attitudes towards them. So far, research has yielded little evidence as to how psychiatrists can influence these attitudes in public campaigns.[308] The next ten years should see more systematic research on how the public should be informed about mental distress and mental disorders, so that better initiatives can be designed to build on and strengthen caring attitudes and integrative behaviour towards people with mental disorders in general populations.

Multi-disciplinary status and role

Psychiatrists are not the only experts for mental disorders and for the different approaches that may be used to help and support people with mental disorders. Other workforce groups such as clinical psychologists, nurses, occupational therapists, arts therapists, and social workers have their own expertise and contribute to a wide range of treatments in multi-disciplinary settings. The specific status and role of psychiatrists within the multidisciplinary role is fluid, both over time and across countries and settings. Constant adaptation is required, and occasionally this can threaten professional roles and status, especially when traditional monopolies such as prescribing medication are affected by extending these rights to psychologists or nurses. Status, role and level of specialisation are shaped by factors related to the structure and delivery of mental health services, professional respect, fashions of treatment and economic opportunities, all of which are affected by public opinion through political processes such as laws, regulation and resource allocation.

A central factor for the specific role of psychiatrists is the overall number of psychiatrists per population. In highly resourced health care systems with large numbers of psychiatrists, there may by wide responsibilities in the direct delivery of care and a large degree of specialisation. However, in countries with low spending on mental health care and low specialist clinical capacity, people with

little specific mental health qualification may need to identify mental disorders and provide treatment as part of their jobs. There, the role of psychiatrists may be more the development of protocols and services, support of staff, quality control, consultancy on the most challenging patients, leadership and advocacy.

The political role

A large body of evidence demonstrates the importance of social determinants for mental disorders.[309] Societal factors such as social inequality, crime, poverty, poor housing, adverse upbringing conditions, poor education, unemployment and social isolation are related to higher rates of mental disorders.[310] The relevance of some social determinants varies across the world.[311] Examples are the significant urbanisation in low and middle income countries; the increasing social isolation in high income countries; the changing flow of refugees in some regions ; and different levels of economic instability, civil unrest, and inequality between rich and poor. Most of these social determinants influence physical health problems too, but they can be seen as particularly relevant to psychiatry.[312–316]

Psychiatrists are not ignorant of the complex interface of the manifold interactions between such social determinants and mental disorders. The challenge is how to improve such determinants most of which cannot be changed by individual psychiatrists and the interventions available to them. Many psychiatrists are aware that antidepressants are palliative at best for a depressed woman living with several young children in poverty and in a destitute neighbourhood, and being subject to abuse from an unemployed man with an alcohol problem. Referral to a social worker, if available, is an obvious option, but hardly addresses the root of the problem. The question is what role psychiatrists can take to improve conditions essential for overcoming mental distress.[317] Is it a role for psychiatrists to be involved in changing social determinants, or should they limit themselves to remain doctors who treat mental disorders of individual patients?

It could be argued that a change in these factors is mainly a political task. Some tasks such as alcohol pricing may be seen and supported as specific public health actions on a country or regional level,[318] others will have an even wider impact and go beyond a debate on public health. Measures that will achieve poverty reduction or less inequality require a redistribution of wealth, providing child care for the poor needs public spending, and only legislation and funding programmes can ensure that all employees receive a living wage and have access to appropriate housing. These are far reaching political tasks and interventions, beyond the direct influence of psychiatrists.

Nevertheless, psychiatrists – as individuals or as representatives of larger organisations – may regard it as their role to advocate and lobby for broader societal actions that may have a beneficial impact on the mental health of the population in general and people with mental disorders

specifically. With their expertise in how social processes impact on mental health and with the societal status of the medical profession and science, psychiatrists can have credibility and influence in a political debate on how to improve the mental health of societies. The influence can be stronger when psychiatrists raise their voice in representative professional associations and jointly with other groups in society, e,g, those representing patients, families or other professions.

There are also more specific political debates and decisions that are central to and directly impact on the work of psychiatrists. Political decisions are required on professional regulations and funding arrangements. At times of growing investment in health care, central or local decision are taken on where to invest and – vice versa – at time of austerity where to reduce services, eg, what type of services and treatments to prioritise. Psychiatrists have a role and expert voice in these debates and should inform the decisions. It may be argued that their influence will be particularly strong, if they are seen as not primarily pursuing a parochial professional advantage, but as acting in the interest of the patients, their families and the wider public.[319]

Working with communities

A general political commitment can only be one aspect of the societal role of psychiatrists. Central to the work of psychiatrists is the need to provide and oversee direct care for their patients. Although they will often be aware of the importance of social factors and potential problems of their patients, the question arises whether changing these factors in the given context of their patients is within their professional responsibility.[320] Are arranging employment and help for getting out of poverty part of a comprehensive psychiatric treatment plan or rather separate tasks? In principle, the same question arises for other medical professions. Is it the role of an oncologist, for example, to assess and address the social isolation of a patient with cancer, since such isolation is a major predictor of shorter life expectancy in oncological patients? One may argue that, if psychiatrists aim to be the leading experts in helping people to overcome mental distress, they need to understand and address social factors. Whilst psychiatrists cannot become social workers, the challenge still is to be experts in assessing social problems and resources, and in initiating, overseeing and evaluating change in the social situation of their patients.[321]

Working not only in, but also with communities is a serious challenge that varies depending on the type of communities with which psychiatrists may work. The challenge can change rapidly, eg, as stipulated by the massive trend towards urbanisation across wide parts of the world or by sudden influxes of large refugee groups.[322] Working with communities can involve mental health promotion and prevention activities, focusing on groups at risk such as young mothers and people from socially marginalised groups; linking with faith communities and their networks; working with employers to improve conditions that put people at risk of mental distress at their workplace and implement

procedures for support in case of signs of mental disorders; lobbying housing providers and local authorities as well as supporting local community activities to foster a better social integration of patients with severe mental disorders. More research is required to decide whether other potential initiatives, eg, discussions in schools about mental distress and ways to overcome it,[323] should be implemented and, if so, how best to do this.

Psychiatrists may have to learn how to analyse the social situation of a patient, evaluate the resources in a family and local community that can be used to overcome mental distress, and identify potentials for beneficial interventions and support.[324] In collaboration with patients and their families, they can then design interventions, be involved in their implementation as appropriate, and have methods to evaluate the outcomes on the level of affected groups and individuals. This will require working with local communities, services and authorities,

This may change the current focus on individualised treatments and instead emphasise the therapeutic potential of groups and communities.[325] In many societies around the world, as a consequence of a shift from rural lifestyles to industrial work and urban expansion, loneliness and social isolation are increasing and causing prominent social problems, which impact on mental as well as physical health. All these issues raise urgent questions as to how psychiatrists can use best their expertise and social status to initiate community cohesion.

Many peer-support schemes[326] and befriending schemes[327] through volunteers have been set up to address the isolation or social exclusion. Such schemes can be valuable to both the patient receiving the support and the peer or volunteer providing it. Moreover the schemes may also benefit communities by linking different groups, thus increasing social cohesion and social capital. A range of schemes exist across the world, although they can be difficult to sustain due to the lack of expert input and organisational support.

In non-Western societies the situation is very different and much more challenging. The number of psychiatrists per population can be as low as one psychiatrist per one million population, and there are hardly any specialist mental health resources for individualised treatments.[328]

In various low and middle income countries, people with severe mental disorders can be hidden, without access to health services, sometimes chained for years.[329] A role for psychiatrists is to find such patients, challenge and change inhumane practices by families, and offer treatment and support instead. Some studies have suggested that psychiatrists and other mental health professionals can create social support systems by training lay people to support families and communities, so that patients receive basic emotional and social support to overcome or reduce their distress.[330,331] This requires a very different model of working from the individual treatment approach practised by psychiatrists in resource rich countries. Instead, they need to consider carefully how their rare expertise can be utilised most efficiently. Psychiatrists need to be coordinators, supervisors and

trainers with an indirect rather than direct impact on people with mental disorders. They need to work with existing networks, such as families and faith communities, and other available support systems such as healers and lay counsellors.[60,332,334] Over the next ten years, the limited number of psychiatrists in low resource countries are required to focus on such roles, rather than concentrate in large capital cities, providing private care to a small group of rich patients.

A focus on working with families, groups and communities rather than on individuals within them can be particularly appropriate and beneficial in societies that are more collectivistic (or family centric), as opposed to more individualistic (or ego-centric) Western societies.[335]

Social media

In areas where face-to-face contacts with psychiatrists are difficult or not feasible, tele-psychiatry is increasingly used as an alternative. Yet, the potentials of technologies go beyond this. Increasingly, social relationships can be online. Research suggests that patients with mental disorders can extensively use the internet and online networks.[336] Psychiatrists cannot ignore this and should find ways to support their patients in this changing context as well as help them to utilise the new possibilities in social media and the virtual internet world.[317,337] Technological progress might also allow many patients to access psychiatrists via the internet across the world, at any time, and wherever the patients are. This might lead to a consumer-dominated market of different types of psychiatric expertise with very variable forms of patient-psychiatrist relationships.

Training

Psychiatrists migrate across the globe. Anecdotally, it is said there are more African psychiatrists in the UK than in Africa. Yet it is questionable whether education and training are preparing psychiatrists to work in different cultural and social contexts. Some shared curriculum may be helpful, although the challenges of standardization are formidable.[338]

For working in and with societies, psychiatrists should know how to campaign and advocate, and have negotiating and mediating skills, which can be learned in training. To a different degree, some curricula have already incorporated specific training in advocacy, communication with the wider public, and taking a role in the wider society.[339] Such training components may be expanded and made more comprehensive as a core part of the training of psychiatrists.

Psychiatrists still receive the major part of their training in hospital settings. A recent survey of training in 33 European countries suggested that in only 12 of them some rotation into a community setting is required, usually with a duration of two to six months.[340] If psychiatrists are expected to work more in the community, they should also receive more training in such a setting.

Psychiatrists should also receive training in social sciences as an important basis of psychiatry in addition to the more biological basic sciences.[317] Training in the next ten years may also emphasise

more skills in interpersonal communication and the management of social groups in different contexts.

Conclusion

The main task of most clinical psychiatrists will continue to be treating individual patients. However, psychiatrists have and will have a wider role in society, ranging from a potential political commitment to practical working with communities. This role will vary substantially in different countries and different societal contexts, and probably remain fluid and controversial. This can make working as psychiatrist challenging and at times frustrating, but also exciting, socially relevant and deeply rewarding.

Part 4: Mental Health Law in 2025

Introduction

The notion that people with mental illness need protection has evolved from teachings of ancient civilizations to guidelines for asylum management through to national policies and finally mental health legislation.

In the UK, like many jurisdictions, but not all, mental health legislation has changed from being about removing the mentally ill from the streets; to the need to provide a safe and caring haven for people with mental health problems; to the need to safeguard and protect the rights of people with mental health problems. We will therefore use the progression of mental health law in the UK to illustrate this, accepting that whilst some aspects are generalizable to other legislations, some will be of more parochial interest.

In 1808, the County Asylums Act was the first legislation specifically dealing with the treatment of the mentally ill. This required councils to establish institutions (asylums) to provide treatment and refuge for people with mental health problems. This was strengthened in 1845 when the Lunacy Act established the Lunacy Commission to ensure the building of asylums in each county and to oversee the running of these. All asylums had to be registered with the Commission, have written regulations, and a resident physician. This legislation had a humane underpinning being borne out of concerns around how people with mental illness were being treated.

In 1890, the remit of the asylums was widened: richer people could now be admitted to asylums and reception orders were developed which allowed a person to be admitted for one year (signed by a Justice of the Peace, or Magistrate). A person had to be “certified insane” before they could be admitted, but this certification was on the order of the parish doctor rather than the specialist asylum doctor, who had little control over who was admitted to their institution. These reception orders could be renewed with the agreement of the Lunatic Commission following the provision of a suitable medical report. In 1913, the Lunatic Commission was renamed the Board of Control and its powers widened considerably. A Royal Commission on Lunacy and Mental Disorder in 1926 reviewed

the care of people with mental health problems, following widespread condemnation of the conditions within asylums with many people being left for long periods without review and extraordinarily high death rates. The Commission findings were that there was an artificial distinction between mental and physical disorder and it recommended greater overlap.

In 1930, the Mental Treatment Act allowed voluntary admissions to mental hospitals (the new name for asylums) and outpatient treatment.

By the 1950s, improvements in mental health treatment meant that people were more likely to recover. A Royal Commission in 1957 recommended that "no patient should be retained as a hospital inpatient when he has reached the stage at which he could go home".[501] Until 1959, admission to hospital had come under the auspices of a judge. From 1959, a new Mental Health Act allowed for admission to mental hospital to be a medical decision, and if compulsory, under a proper legal framework. For the first time, there was a requirement for appropriate treatment to be available for a person to be detained against their will.

The 1983 Mental Health Act sought to bring mental health law in line with the European Convention on Human Rights. The provisions of the 1959 Act did not include sufficient safeguards around the arbitrary detention of people with mental illness. The 1983 Mental Health Act required the speedy and regular review of a person's detention. The introduction of Approved Social Workers whose role was to ensure that the rights of the patient were properly adhered to was a key advance: the rights of the individual were being brought to the forefront of mental health law.

The most recent UK legislation, the 2007 Act, introduced supervised community treatment, including community treatment orders. Unlike the 1983 Act which specified the types of mental disorder required for detention, the 2007 Act does not, which prompted concerns that this new "umbrella" definition would "catch all" manner of mental disorder, including autism and substance use disorders which were precluded with the 1983 Act. Although guidance clarified that people with primary alcohol and substance use disorders were not liable for detention and those with learning disability had to have abnormally aggressive or seriously irresponsible conduct associated with this, sexual deviancy and Asperger's Syndrome are included in the definition of mental disorder. This means that even transgender people could be detained under the Mental Health Act. As such the new definition was felt to be overinclusive. Most controversial was the removal of the need for the mental disorder to be treatable and its replacement with the criterion that appropriate medical treatment has to be available.[502] Moncrieff has complained that the 2007 amendments to the 1983 Mental Health Act have been driven by a fear of the risk of violence posed by a very small group of people with dangerous and severe personality disorder.[503]

A significant proportion of detentions under the MHA in the UK are driven by concerns about the risk a person may pose to themselves and particularly to others, yet the primary method used to

determine this—unstructured clinical judgment—is a poor predictor of risk.[504,505] Although having a mental health problem is associated with a much higher risk of self-harm than in the general population, this is not the case for risk to others. Even in those with severe mental illness (such as psychosis and schizophrenia) the risk of self-harm/suicide is 7·2 times the risk in the reference population,[506] with the risk of behaving violently being 1·2 times the risk of the general population.[507] Over-reliance on unstructured clinical judgment might result in more people being detained under the MHA than is necessary.

Overuse of mental health legislation has significant resource implications. The estimated cost for a voluntary admission in the UK is about £12,200 based on a median length of stay of 38 days. Andrews et al (2012) found that involuntary (compulsory) admission under the MHA in the UK is associated with an increased length of stay and involuntary admissions are likely to be far more expensive because they are usually longer.[508] They concluded that the availability of more and better interventions outside of the hospital inpatient setting would help to reduce such costly admissions.

A more evidence-based approach to mental health law would likely result in greater focus on health need, rather than risk. Such an approach would increase access to appropriate evidence-based care in the least restrictive setting for that individual at that particular time. Focusing on health need would identify those with mental health issues who increase their risk to themselves or others, and allow for them to be treated under section of the Mental Health Act. Together with legislation that focused on ensuring that appropriate treatment options were available in the most appropriate setting, this would probably not only reduce the numbers of people who are detained unnecessarily or for longer than necessary, but might well have significant cost benefits.

An evidence-based approach to mental health legislation should be designed around health need and improving outcomes. Mental health legislation should mandate access to good quality mental health services and care in whatever setting is most appropriate for that individual at that time; provide recognition of and protection against abuse (from carers, mental health providers and the state), and be based around ensuring that the will and preferences of the individual are given high priority. If mental health law were written to achieve this, the risk posed by a particular individual to themselves or others, would still be addressed, whilst reducing the likelihood of compromising the care, rights and freedoms of others (panel 3 **[A: Citation required]**).

The problem with existing mental health law

The problem of mental health legislation and human rights

The CRPD sets mental health law a profound challenge: compulsion based in whole or in part on mental disability is said to be discriminatory, and thus in breach of the Convention.[516,517] Psychiatric detention and compulsory treatment have been mainstays of mental health provision for more than

two hundred years; is their abolition possible or an idealist dream? And how is this to be accomplished by, say, 2025?

This may be perceived as radical, but the psychiatric professions have (often after a period of resistance) adopted and promoted radical approaches, for example, the non-restraint movement in nineteenth-century England, or the move to abolish mental hospitals in Italy led by Basaglia, Manuali and their colleagues in 1960s and 1970s. Other medical specialities seem to get on fine without legal compulsion; should psychiatry be using it, and if not, how do we get eliminate it?

We have to see compulsion as part of a bigger picture. Programmes have to be introduced and adjustments made so that the full range of CRPD rights will be realised. Detention and compulsory treatment cannot be sensibly divorced from the provision of appropriate services, most required by the CRPD, that people want to use. The CRPD requires people with disabilities to be involved in all aspects of implementation, and that may be pivotal in devising services that really do meet their needs. Mental health law can no longer be just about the regulation of compulsory admission and treatment, and the mental health legislation of the future must change to reflect that.

We need to see the use of compulsion as a system failure. Some mental healthcare providers have started to address that for restraint and seclusion, through the No Force First principles.[518] Expanding that idea to compulsion generally, ie, "No Compulsion First" would be a good starting point. Some German hospitals (notably small town and rural settings, rather than urban centres) have almost completely abolished compulsory psychiatric treatment, with no corresponding increase in other types of coercion or violent behaviour.[519] The longer term effects of this and whether this work can be generalised to other areas and countries is yet to be evaluated, but these efforts suggest that the need for legal compulsion should not be taken for granted: we really might be able to do things differently. Developing alternatives to compulsion requires research, of which little has been done. We know very little of how compulsion in mental health law is used now, let alone what we can do to avoid it. The limited evidence base makes it difficult to articulate what law relating to compulsion should look like in the future, if it continues at all.

In all of this there is a caveat: law can provide frameworks, but passing laws does not necessarily change much without the political and social will to implement the law. Resources are part of that, but not the whole issue. In many countries, all psychiatric detentions are by judicial order, after a court hearing. While it looks good from the outside, it is usually an expensive rubber stamping exercise. We will see real change only if the people involved in the system engage with it and buy into its importance.

The problem with mental health law based around risk

Mental health legislation permits psychiatrists to decide who should be treated. These laws effectively grant psychiatrists the status of substitute decision makers, rather than counsellors and

mental health service providers. However, there are problems with developing mental health legislation based around risk.[512] As the UN CRPD clearly states, "the existence of a disability shall in no case justify a deprivation of liberty".[516]

'Risk' became a prominent feature of mental health law and policy-making in the 1990s, particularly in Western countries. One reason for this was Society's belief that many hazards are predictable and controllable and, therefore, policy and legislation should take into account all the necessary steps to avoid, or at least minimize the fallout of, a particular hazard or risky behaviour.[522] Other reasons were that psychiatry developed a better understanding of the predictive value of certain risk factors, and growing public anxiety that mental health services were not doing enough to challenge that 'risky' behaviour.[522]

Definitions of the concept of risk are wide-ranging. With regard to mental health, 'risk' is used in the medical sense and usually refers to the probability of a person developing a mental disorder. However, in mental health legislation, the term is often used to describe the probability that a patient already having a mental disorder will harm themselves or others. Some authors have argued that law-makers across the globe believe the risks posed by patients with mental disorders are so high that they require specific legislation and policy.[522] Thus, the notion of risk has evolved into an instrument of social control in modern mental health law and policy, eg, the UK 2007 Mental Health Act. Some authors have claimed that the 'additional harm' criteria of the Australian Mental Health Act might breach human rights obligations by imposing a discriminatory threshold for care on patients who are unable to consent to treatment for themselves.[523]

It is time to reconsider the development of mental health law based around risk. Risk assessments that place patients in high-risk or low-risk categories have been widely adopted by mental health policies, laws, and services in an effort to reduce the harms associated with mental disorders, eg, in Australia, the UK, and the USA.[524–526] However, most patients categorized as being at high risk will not engage in any harmful acts.[527] Additionally, clinical decisions made on the basis of risk assessment divert resources away from patients classified as low risk, which in turn leads to less availability of treatments.[528]

Decision making capacity and 'best interest' tests are other criteria used for the development of mental health law. However, both of these factors pose problems. Mental capacity legislation has become too broad in scope, which has led to people being subjected to treatment against their will. Additionally, 'best interests' tests have been proven to be strongly attached to psychiatrists' subjective and personal understandings of what is 'best' for the patient (without taking into account patient's preferences).[529]

The debate about law-makers' attitudes to risk assessment is crucial. The emphasis on 'risk' at the expense of care has made psychiatry more coercive, psychiatrists more risk averse, and has

increased prejudice against our patients.[530,531] Psychiatrists should be able to provide optimal care according to the treatment needs of each patient.

Assessment of 'risk of harm' should not form the basis for law, policy, or clinical decision making. Mental health laws and policies must reduce the importance of 'risk' assessment in their conception and redirect the focus to what patients can do, what they want to do, and how mental health professionals can help in the recovery process.

The problem of coercion in mental health law

Mental health law provides the legal authority for compulsory detention and treatment, and commensurate with that contains safeguards in relation to the exercise of that authority, as well as setting out entitlements to services. However, it has more limited impact over the discretion as to when or how to exercise the authority to detain and treat. Coercion then becomes an important mediating factor as to how the legal criteria are applied and which rights are brought into play as being relevant.

The law suggests a dichotomy exists – a person is detained or not. In practice, coercion can determine who falls which side of the line regarding, say, compulsory detention. Practitioners will be familiar with the scenario of a person refusing the offer of a voluntary admission – until faced with the prospect of a formal one. A patient's legal status is not a reliable guide to how much coercion they felt subjected to during the admission process.[532]

Coercion has been described as "pressures exerted by one person (or organisation) on another with the intention of making the latter act in accordance with the wishes of the former".[533] It is usually portrayed in a negative light, with an emphasis on the use of compulsion, or at least the threat of it. More recent work has viewed coercion as a hierarchy of behaviours, shading from positive forms to negative ones. Szmukler and Appelbaum (2008) set out a spectrum from persuasion through interpersonal leverage, inducements and threats to the use of compulsion.[533] Professionals are more overt about the use of compulsion but need to become more honest about the use of positive forms of coercion.

The work of the MacArthur Research Network on Mental Health and the Law has provided powerful evidence of how positive forms of coercion can have a beneficial therapeutic impact. Patients afforded "procedural justice", that is having a voice in the process and being treated with respect and in good faith, experience significantly less coercion than those not so treated.[532] This can be observed in settings such as mental health tribunal hearings where the impact of decisions contrary to the wishes of the patient can be mitigated by following processes that promote procedural justice. Outside the hospital, some would argue the discussion about mandated community treatment needs to be re-focused from coercion to one of having a contract with the person concerned.[534] Although advocates of compulsory community care argue it is less coercive

than compulsory in-patient care, the evidence of a reduction in use of mental health services or better outcomes for patients is sparse.[535,536] As with compulsion in the hospital, further research in the community to elucidate whether (and how) coercion, in its various guises, has longer term beneficial effects such as improved engagement or levels of functioning has to be an important priority in the coming years.

In the UK, the Department of Health has called on hospitals to significantly reduce their use of restrictive interventions and practices.[537] The challenge will be to ensure that insidious forms of coercion are not then allowed to unwittingly dictate the life on the wards for all patients.

Mental health legislation into 2025 - can one size fit all?

The WHO states that mental health legislation is essential to provide the necessary framework for protecting the rights of people with mental disorders because of the stigma, discrimination and marginalisation they face in all societies.[538] The UN CRPD[516] has been an important landmark leading to developed and developing nations reviewing their legislation to safeguard the rights of the mentally ill. But is it feasible to have a common set of principles and goals for mental health legislation for all countries given the varied cultural, historical, political and economic contexts?

There is huge international disparity in levels of resourcing of mental health services. A country with 0·1 mental health workers per 100000 population (eg, Vietnam) might have more difficulty guaranteeing access to care and resourcing human rights safeguards than a country with more resources such as the UK.[539] Access to mental health services is a challenge worldwide. South African law aims to make access to mental health services equitable.[538] The USA passed the Mental Health Parity Act (1996) to ensure that insurance companies give equal coverage to mental and physical illness. Brazil has legislation to ensure access to mental health medication; Tunisia to medical and psychosocial care[538]; and India to provide everyone with access to free mental health care.[540] Whilst commendable in its aims, India's Mental Health Care Act (2017) might be too ambitious for a country with only 0·6 mental health workers per 100000 population.[540,541]

Much rights-based legislation is drafted to protect people from abuse by the state. However, in many countries, such as Pakistan, China, and Indonesia, families are the main carers and might be struggling in the absence of community services and using restraint and other practices that violate the human rights of people with mental disorder.[542–544] In China, before the 2013 mental health law, families were responsible for making treatment and admission decisions on behalf of their family member, not the individual themselves or the psychiatrist. Families also bear civil liability for their family member's behaviour.[542] Recent legislation in Western Australia has been heavily influenced by the increasing emphasis on the rights of families and carers as well as those of the individual.[545]

Countries that were previously colonised by Europeans may have a legacy of institutions and legislation that are not well aligned with their local culture and context.[546] Some countries have

populations for whom they make special provisions as a result of past trauma, oppression or mistreatment. Australian and New Zealand mental health laws have provisions for recognising and respecting Indigenous people and their culture (Mental Health Act 2014 Victoria and Mental Health Act 2014 WA;, NSW Mental Health Act 2007; Queensland Mental Health Act 2016; South Australia Mental Health Act 2009; Mental Health [compulsory assessment and treatment] amendment act 1999 New Zealand). Colombia passed legislation in 2011 to provide comprehensive support for victims of armed conflict.[547]

Some cultures place less emphasis on individual human rights and it is difficult to guarantee the human rights of people with mental illness in a society where human rights are not a priority.[540] Despite the differences across countries and cultures, common challenges emerge[548] (panel 4). Mental health legislation cannot meet these challenges on its own. Poorly drafted, under-resourced, badly implemented, or even frankly oppressive legislation can make things worse. But realistic, well drafted, and well implemented legislation can complement and reinforce mental health policy to improve the outcomes for people with mental disorders.[548]

Mental health legislation: what should it ideally cover?

Historical discrimination and segregation of people with mental illness places them in a vulnerable situation in many societies. Legislation can play an important role in protecting their rights, either through standalone legislation or provisions protecting the rights of people with mental illness which can be incorporated in health or disability legislation. The UN CRPD[516] has forced a paradigm shift in our view of disability and people with disability. Disability is no longer seen as a deficit in the individual that needs correction (traditional medical model) but as arising out of an interaction between individual impairments and social and environmental barriers that prevent disabled people from full and effective participation in society (biopsychosocial model). Laws therefore need to address effectively attitudinal and other barriers while simultaneously helping people access health services to reduce their impairments.

In the field of mental health, the adoption of the biopsychosocial model of disability also requires a shift from a traditional emphasis on 'best interests' of the person to an emphasis on respecting the 'will and preferences' of the individual and thus removing attitudinal, social, and environmental barriers. Mental health legislation therefore needs to overcome the entrenched principle of 'best interests'. Laws need to protect the right of people with mental illness to take decisions for themselves. This can be achieved through content and procedures in law to promote, respect, and fulfil the right of people with mental illness to exercise their 'will and preferences' when receiving mental health care and treatment, for example, advance directives, enduring power of attorney, support networks, personal ombudsman, personal representative and representation agreements

enshrined in legislation. Such tools should be used when providing mental health care and treatment.

Another important justification for mental health legislation is ensuring access to mental health care. In many parts of the world, the physical health and mental health needs of people with mental illness are neglected with disastrous consequences – in nearly all countries where it has been researched, people with mental illness have a 15–20 years lower life expectancy than their peers without mental illness**[Ref: from earlier in the whole Commission]**. There are many reasons for this reduced life-expectancy, but lack of parity in provision of health care (and mental health care) is an important contributor,[549] which can be addressed through legislation.

Access to healthcare means providing it in a manner that is acceptable to people with mental illness and their families and enables their inclusion in the community. Legal provisions can stop segregated services and mandate the creation of a range of mental health services that promote social integration and support people to live fulfilling lives in their own communities.

For many, common medical practices such as seclusion and physical restraint, are seen as cruel, inhuman and degrading treatment, in much the same way as chaining in mental health facilities. Mental health legislation can be written so as to discourage mental health service providers from continuing with these practices.

Bach and Kerzner have outlined a practical legal model for incorporating the concept of decision making capability when providing treatment for mental illness which can be easily incorporated into law in most countries.[550]

For too long, involuntary hospitalization and treatment has taken centre-stage in mental health legislation to the detriment of the rights of people with mental illness and pitting mental health professionals and people with mental illness against one another. Involuntary hospitalization is based on ideas of decisional incapacity and 'best interests' rather than focusing on decision making ability and respecting the 'will and preferences' of people with mental illness. Laws related to mental illness need to move away from involuntary hospitalization with its focus on decisional incapacity and best interests and instead focus on enabling decision making capability which is a combination of the unique decision making ability of the individual plus understanding the will and preferences of the individual combined with decision making support and adjustments to enable people with mental illness to make legally competent decisions.

Mental Health Legislation in 2025 – The way forward

The different authors of this section of the Commission had very different views about mental health legislation, with some suggesting that it does far more harm than good and should be significantly reduced or removed altogether, to others who call for something akin to greater dissemination such that mental health is taken into account when all legislation is developed in an effort to reduce

stigma and discrimination. The differing viewpoints likely reflect those in wider society. We did not reach consensus.

The 2017 Report of the UN Special Rapporteur on Health has called for "the active involvement of the psychiatric profession and its leaders towards rights-compliant mental health policies".[551] In line with this, mental health leaders, service user organisations, and human rights specialists should work together in formal commissions aimed at shaping better mental health legislation.

Our majority view is that in 2025, any mental health legislation should have the primary aim of improving outcomes for people with mental disorder. It should be evidence based: using evidence-based treatment outcomes informed by patient experience as a fundamental underpinning and research aimed at eliminating coercion and compulsion. On the journey to elimination, there must be an evidence-base to justify and guide existing use of coercion and compulsion. It should mandate for funding and resources to promote good mental health as well as addressing mental health problems and take into account cultural mores and understanding around mental illness and encourage increased advocacy for the rights of those with mental health issues which should over time, shape concepts of management and care.

In practical terms, mental health legislation should encompass the need for practitioners to show that they have provided an evidence-based treatment package for the individual and that the individual has been supported to enter into a contract around how best to engage with that treatment package and how the provider can best deliver it. There should be greater and routine use of positive coercion with tribunal panels being primarily based around agreeing treatment packages (which would include type of treatment, setting for that treatment, and who provides the treatment), rather than whether or not the person should be in hospital. The individual would be part of this discussion, with reasonable adjustments having been made to increase the possibility of them being fully involved in the process. Advocates, advanced directives, power of attorney etc, would all support and safeguard the individual's rights, will, and preferences.

Enshrining an evidence-based approach in law would increase the likelihood that people with mental health problems receive a more considered assessment plus higher quality treatment more likely to address their needs. The minority of individuals who have problems with violence would have this addressed as part of their treatment. As it became clearer where there was a scarcity of evidence around treatment needs, the legislation around provisions for mental health funding and funding of the research for mental health would come into play, making it apparent which areas were in need of being addressed: for example, in the UK there have been few calls for research into the management and treatment of violent behaviour in people with severe mental illness, despite the fact that this is one of the main concerns about people with mental disorder.

These changes would not eliminate coercion and compulsion or the undue emphasis on risk, but they would give greater emphasis to partnership working, negotiation, and contracting, with the likely additional resources (financial and manpower) that would result from governmental legislation (ring-fencing or prioritizing mental health funding). Psychiatrists would have to spend more of their time engaging people in treatment programmes and ensuring that service users are involved in their care and in the decision making about their care. In the longer term, this more collaborative approach might mean that service users would be more likely to take more responsibility for their own care and more likely to be proactive about seeking treatment. Ultimately, this approach should result in a reduction in coercion, compulsion, and the use of hospital beds which is a costly drain on resources.

Mental health legislation should mandate training such that all health professionals have some mental health training and to ensure that more professionals are trained to become mental health practitioners in line with the known mental health need of that jurisdiction. Similarly, legislation should ensure that access to good quality mental health care is available when it is needed.

Mental health legislation should be enshrined within equality legislation and thus cover wider societal issues, in particular access to housing, resources, employment.

All governments should include a mental health impact assessment when drafting legislation to ensure that it takes into account the needs of people with mental health problems and does not inadvertently discriminate against them.

By 2025, we could envisage regular monitoring of the recognition of the rights of those with mental health problems as reflected in legislation as well as attitudes within treatment institutions and the community at large.[552] This would enable different jurisdictions to be compared with respect to their "mental health literacy", ie, how well they respect the rights of those with mental health problems, including the right to care, to treatment and inevitably the right to risk assessment and, if necessary, the right to involuntary admission for treatment. We did not reach consensus, but in essence, mental health legislation in 2025 should not simply be a narrow piece of legislation that deals with how to manage the affairs of a person who becomes mentally unwell, but a wider piece of legislation that incorporates government policy about human rights; equality legislation; resource allocation and individual rights, preferences and needs.

Part 5: Digital Psychiatry in 2025: Augmenting and Enhancing the Future of Mental Health

The digital psychiatry revolution has arrived. From tangible tools like smartphones and virtual reality headsets to the underlying developments in data analytics and machine learning, this plethora of digital advances offers a myriad of possibilities for psychiatry. Understanding what those possibilities

are and navigating the field towards optimal use of these new digital tools is important for all psychiatrists in ensuring that future care offered is the best care.

Digital psychiatry, the use of mobile and other connected digital devices to offer mental health services beyond traditional telepsychiatry, has rapidly emerged due to the convergence of technological, societal, and analytical advances. Smartphones, owing to their many data sensors, large screens, and various communication modalities, have emerged as early leading devices for digital psychiatry. They, and other devices, include the technology to collect data relevant to mental health, share it with the healthcare system, and deliver feedback and resources based on those data – offering the potential of a closed loop system. However, numerous complex real world and societal forces continue to shape the field, as we review in this paper.

Widespread technology adoption has made digital psychiatry feasible

The global population's rapid adoption of smartphones continues[601] with estimates that by 2020, 80% of the adult population will own one.[602] People with mental illness also increasingly own and use smartphones in their daily life.[603,604] However, the rapidly expanding mental health service gap between resource-rich and resource-poor countries,[61] as well as the socioeconomic burden of mental illness, still precludes some people from accessing digital technologies like smartphones.[606,607,687] Decreasing costs and increasing availability of such technologies suggest that ownership and use will continue to expand.

Interest in using smartphones for mental health care has exceeded the clinical evidence and knowledge base. Over 10 000 mental health apps are available for download and use,[608] yet minimal data exists on their safety, usability, or effectiveness.[609,610] Smartphones are only the first wave of new consumer technology applied to mental health. Wearable sensors like fitness trackers,[610] augmented reality glasses,[611] **[A: Reference corrected. OK?]** and virtual reality headsets[612] are examples of digital technologies entering the mental health space. Other advances that do not rely on consumer technology but are already projected to change healthcare include portable diagnostics, smart and implantable drug delivery mechanisms, more affordable genome sequencing, data science and machine learning, and digital security advances like blockchain.[613]

The widespread adoption of digital tools and their technical ability to collect data or deliver services related to mental health offers the potential, not yet fully realised, for digital psychiatry to have a role in clinical care. That potential is affected by numerous shaping forces in the real world (figure 2). Factors such as patient and clinician engagement, clinical validation, clinical utility, interoperability, scalability, and economic value will mould the hope, some may even say hype, of digital psychiatry into reality. What that reality may look like and how we must balance the shaping forces is the topic of this paper.

Toward digital phenotyping and personalized diagnosis

Despite major advances in our understanding of the biological basis of mental disorders, clinical biomarkers remain elusive[614]; the potential of digital phenotyping enabled through personal digital devices might offer an unprecedented opportunity for psychiatry. A vast amount of new data are now available from self-report, behavioural, physiological, neurological, molecular, and genetic information These data offer an opportunity to evolve the nosology of mental illness away from phenomenologically derived descriptions towards more personalized and reliable definitions. For instance, through real-time symptom surveys on devices, it is possible to capture experience while minimizing retrospective recall bias.[615,616] In addition to mobile app usage patterns,[617] the sensors on these digital devices allow the capture of more objective behavioural data, such as global positioning system (GPS) information about spatial location[618] and call and text logs providing a window on social activity.[619] Digital cameras on devices can be used to help diagnose congenital disorders with dysmorphic phenotypy and match patient cases to potential genetic syndromes. Physiological sensors on wearable devices like fitness trackers and smartwatches can already capture some basic, although not necessarily precise, information related to heart rate and skin conductance.[620] Efforts are underway to develop reliable digital sensors that may be able to capture mobile electroencephalographic data (EEG),[621] the molecular composition of sweat,[622] and even perform rapid genotyping.[623] Clinical studies are in progress of digital pills that automatically monitor medication adherence **[A: is this ref 624?]** and the near future may bring previously unimagined streams of digital data.[624] Models to organise these data, such as the National Institute of Mental Health's (NIMH) Research Domain Criteria (RDoC) offer a proposed framework (figure 3). Digital psychiatry will enable a more accessible and multidimensional personalized psychiatry, with opportunities to focus more on primary and secondary prevention.[625] By 2025 the field may move more towards identifying and managing preclinical risk rather than only treating overt illness.

The ability to collect this vast amount of digital data will likely be met with well warranted concern. Consider the 2014 Samaritans Radar project, a service that automatically scanned social media posts on Twitter for negative language like "hate myself" and alerted that person's contacts that he/she may need emotional support.[626] A rapid national public outcry centred around privacy and consent quickly led to the removal of the Radar. It is now possible to capture much more extensive and personal data related to mental health in less obvious ways, raising the need for a public dialogue on how we should use these data in digital psychiatry. Ethical issues related to the use of these data remain complex and not well addressed.[626]

Towards digital prevention and therapeutics

Digital technology offers the potential to provide new models of adjunctive therapies and interventions that will bring treatment outside the clinic. Telepsychiatry already possesses a robust evidence base[627] and digital health tools offer the opportunity to make such services more accessible

and engaging. For example, interventions like cognitive remediation and cognitive behavioural therapy (CBT), effective treatments for those with serious mental illness, can now be delivered when and where the patient is via mobile devices with personalized feedback delivered in part by automatically collected sensor data. Early evidence for this hybrid paradigm of digital assessment and treatment with both machine and clinician support has shown encouraging results with CBT,[628] moving away from pure computer-based programs to just-in-time real-world interventions and personalized sessions.[629] Encouraging research in addictions has highlighted the potential of smartphones to support contingency management for treatment of addictions.[630] Newer technologies like augmented and virtual reality offer the potential to create optimal environments and spaces for exposure-based therapies.[631]

Thus, these technologies may be means by which the concept of space in psychiatry is reversed; a patient's location will no longer determine what treatment they can access and instead the ideal environment and treatment resources will be digitally delivered to them. Many psychiatric clinics are based in cities where there is a higher density of those seeking care, but soon it will be possible to offer digital services in rural or remote areas. Clinician involvement is critical to the success to digital interventions,[632] and thus the psychiatrists and psychologists of 2025 will likely divide time seeing patients face to face and supporting them through digital interventions, or possibly doing both in the clinic through blended therapy.

This model of digital technology potentially enables a personalized understanding of an individual's mental illness; emerging digital tools to prevent, augment, and enhance care offer a promising picture of psychiatry in 2025. Yet transforming that potential into reality will require concentrated efforts to steer the development, research, and education of digital psychiatry towards these goals and away from possible pitfalls. The barriers listed below are both the opportunity and challenge for psychiatry to shape digital technology to promote better patient care. They focus on shifting the focus from the technology itself towards what technology can enable and facilitate. Neuroscience advances will likely lead to new discoveries and treatments for psychiatric illnesses by 2025 and the role of technology may be very different than it is today (with current efforts mostly centred around smartphone data). However, the core principles of patient enjoyment, trust, partnerships with data science and machine learning, clinical evidence, interoperability, and clinical integration will remain important.

Clinical considerations and Training in Reaching the Vision of Digital Psychiatry

The increasing ability of technology to capture new data or offer new digital services does not automatically translate to clinical utility or efficacy. Technological innovations have often developed in isolation from advances in clinical practice; the six core considerations outlined below can help move these two modalities closer. While many examples feature smartphone apps, no smartphone

platform today meets all six core considerations. Both existing and new technologies must seek to balance and satisfy all six, if they are to have a clinical role on 2025. Of critical importance, ensuring care and user needs lead technology development, rather than vice versa, will ensure viable and impactful rather disruptive but short-lived advances.

Creating engagement through stronger patient partnerships

In shaping digital technology to best benefit mental health care, greater involvement from both patients and clinicians is essential. Focusing here on patients, it is critical that these digital tools successfully meet the needs of those who use them. For example, there are numerous mood tracking apps but for patients with depression many proved difficult to enter and retrieve data.[633] Patients have also noted that today's apps do not offer enough emotional support, they distract from real life challenges, they may lead to care avoidance, and cause misrepresentation of symptoms.[634] Many are simply not enjoyable to use. It is hardly surprising that smartphone apps for mental health suffer from poor adherence.[635–637] The majority of individuals might never use a mental health app after downloading.[635] While digital mental health might evolve past smartphone apps, the requirement for technology to meet users' needs will remain constant. Involvement of patients in all phases of the design, research, and implementation of these technologies will be critical for success.

Of course, technology alone cannot solve engagement. Clinician involvement with the technology is a key factor in increasing user satisfaction and engagement,[639,640] but psychiatry has not yet established models or best practices for how to best engage digitally with patients. The same digital divide in terms of confidence and understanding of technologies seen in some portions of the mental health patient community may also be present among mental health professionals. Many clinicians have practised for years before smartphones were invented, let alone applied to mental health, and thus there is an often unrecognised need to educate colleagues about digital tools. The number of digital devices, their ability to generate constant data, and the novel nature of these data present a challenge for the field. Many psychiatrists remain justly concerned about the role of digital technology in the patient-doctor relationship and will likely remain reluctant to engage until there is stronger safety, utility, and efficacy evidence.[640–642] Engagement in this group also means that we need the involvement of psychiatrists in the development of these technologies. Ensuring that both patient and psychiatrist voices are heard effectively is a topic for further research but it may be the most important, and currently underappreciated, step necessary for digital psychiatry to advance. These two voices will also have to navigate the doctor–patient relationship in an increasingly digital era where clinicians and patients each have access to more data and information. Digital psychiatry does not mean that clinicians release all treatment responsibility to service users or that service users ignore clinical advice because of access to new tools. Rather a balancing of power is necessary

although the dynamic nature of technology can make it difficult to find that equilibrium. Further research in this space will be critical for the success of digital psychiatry.

Another often overlooked aspect of engagement is that while increasingly many have access to digital devices like computers and smartphones,[603,644] some individuals still do not. The monthly costs and fees associated with smartphones and their use may still be too high for many to have reliable smartphone service,[645] and people in resource-poor countries or of lower socioeconomic status likely do not have the same access opportunities.[646] However, technology costs continue to decrease, meaning both feasibility and cost effectiveness of digital psychiatry remains a moving target. Assessing digital technology access, as well as comfort and fluency, will likely become part of routine screening with specialised education or peer support programs developed to ensure that all can access these tools.

Building digital trust and transparency

The role of digital psychiatry in 2025 will also depend on trust. Even with advanced technology, the foundation of healthcare and especially psychiatry remains based on trust and a strong doctor-patient relationship. If patients are not comfortable disclosing sensitive information, the foundation of digital psychiatry will be fatally flawed. Patients need to feel confident that in sharing their psychiatric history, their experiences and private information will be respected. Likewise, patients need to be aware of the scope of data that can be collected about them via digital devices, especially in the case of passive data, and they must understand why and how it will be used. Just as psychiatrists today educate patients on risks and benefits of medications and treatments, in the future they will need to be able to discuss risks and benefits of digital monitoring or interventions, and help patients make informed decisions

At present there remain serious concerns regarding the privacy, transparency, and confidentiality of digital health tools. The current culture where smartphone app privacy policies are often lacking,[647] or when present obfuscate how patient data are handled and shared,[648] is not compatible with the goal of widespread clinical use. Even in 2016, governing bodies such as the US' Department of Health and Human Services have noted pitfalls and concerns related to the lack of trust associated with the app marketplace,[649] and the NHS in England closed its app store in 2016 for the same reasons. While new digital technologies like blockchain will help make digital health information more secure from malicious hacking, building trust is more than a technical problem and the field will need to focus on the ethics of digital psychiatry.[630,650–652] While current digital tools mainly monitor symptoms or offer preset guided therapies, there is growing evidence that these digital tools work best when coupled with human support.[632,639] While in the near future we can expect that artificial intelligence, automated decision making, and individualized therapies will become closer to reality, it is unclear whether they can rival the increased engagement and efficacy noted from hybrid use of

the human supported use of technology. Efforts to create emphatic technologies for mental health are underway.[654] Psychiatrists will need to become familiar with these many ethical issues that will arise. A good start is to look for a privacy policy for a device or application and learn what protections are put in place. The American Psychiatric Association offers a useful free resource to help evaluate apps on its website: **https://www.psychiatry.org/psychiatrists/practice/mental-health-apps**

Data Science and Methods

With digital psychiatry studies assessing real-time passive data from subjects and existing programs like electronic medical records collecting or generating big data (data of high velocity, high volume, and high variety), the analytical methods to process these data become increasingly complex. The analytical methods for processing big data are also challenged by the complexity of clinical psychiatric data. For example, there is overlap between different diagnoses of psychiatric disorders, but conventional data mining algorithms are not well suited to processing data with such fuzzy labels. The NIMH RDoC model might offer a useful framework for understanding how different types of psychiatry data (eg, self-reported symptoms, behaviours, physiology) can be collected from digital devices and organised in a manner to facilitate meaningful analysis, as outlined in **Torous et al, 2017**.[655] Integrating and processing multimodal data from digital technologies also presents substantial challenges.[656–658] Big data are a supplement to, not a substitute for, traditional data collection and analysis in psychiatry. The use of big data does not mean that one can ignore basic principles of study design, data collection and data analysis. To obtain robust results, findings must be replicated in independent populations to examine their generalizability.[624]

Neuroimaging modalities such as CT and MRI scans have advanced interest and understanding in fields like neuroradiology and neuropsychiatry where psychiatrists, neurologists, physicists, and data scientists work together to transform brain imaging into clinically relevant information. Similar efforts will be necessary with smartphone data and digital phenotyping. The quantity and complexity of data from smartphones is beyond that of neuroimaging where all setting and measurement parameters are carefully controlled in a clinical or hospital setting. Smartphones today can easily generate over one million data points per patient per day. The volume of data, let alone its complexity, is expected to expand as new devices are introduced. Considering the amount of data generated from electronic health records, pharmacy records, genetic testing, and neuro-diagnostics like electroencephalography, it is clear that the field will need new methods and tools to transform data into clinical information. Big data are already affecting psychiatry,[660] helping predict response to antidepressants,[661] analyse speech for risk of conversion to psychosis,[662] and even augment risk assessment.[663]

In 2025 we expect that there will likely be a branch of psychiatry dedicated to these digital tools in the same way that some psychiatrists today specialise in interventions such as transcranial

magnetic stimulation or electroconvulsive therapy. Clinical informatics is already a subspecialty and more training opportunities will likely arise. Partnerships with data science will become more common and it is not unforeseeable that data analysts will be part of the clinical team by 2025.

Building the evidence base, standards, and creating best practices

Although we possess some pilot data supporting the feasibility and acceptability of digital psychiatry tools like smartphone apps across nearly all conditions,[664] clinical data on tools such as smartwatches, augmented reality, virtual reality, artificial intelligence chat bots, and digital therapeutics remains scarce.[665] Larger scale digital psychiatry studies on schizophrenia and depression[666,667] have provided acceptability and feasibility results but no efficacy data. Even simple claims, such as fitness trackers being able to accurately measure heart rate, have in some cases proven nearly seriously wrong and led to legal disputes regarding false claims and misrepresentation of technology.[668] As Thomas Kuhn writes in *The Structure of Scientific Revolutions*, "the success of the paradigm... is at the start largely a promise of success ...science consists in the actualization of that promise".[669] Actualizing the promise of digital psychiatry is thus another challenge facing the field. Today even the simplest questions such as which patients will benefit most from digital interventions, at what dose, with how much human support, and for how long are still largely unanswered. Mechanisms of change through digital technologies are also largely unknown. Initial hopes that a simple digital translation of validated clinical scales or effective in-person treatments would prove valid and effective have given way to more fundamental research to create an evidence base for digital psychiatry.

As research and understanding of digital psychiatry expands, carefully crafted standards will be necessary to help guide development without hampering innovation. A lack of standards has led the promulgation of many low quality and even dangerous apps on the commercial marketplaces.[608] The US Federal Trade Commission recently targeted false claims by makers of 'brain training' apps.[671] The difficulty in finding a safe and effective app is well known to anyone who has entered the word depression into these app marketplaces and been confronted with hundreds of apps making increasingly bold claims. Early efforts by the American Psychiatric Association to offer guidance in selecting apps reflect a first step of what will be an ongoing and iterative process to provide some form of standards to enable both patients and clinicians to identify useful digital psychiatry tools and stay away from the dangerous ones.[672] As the evidence base for digital psychiatry evolves, psychiatrists need to remain up to date and educated to ensure they are practicing within this evolving standard of care.

Sustainability and Scalability Through Interoperability

Digital psychiatry tools to improve care will need to be both sustainable and scalable. While data generated from an app or feedback from a digital intervention interfaced into a centralized electronic

medical or pharmacy record will greatly enhance integrated care, not doing so may actually impede care through fragmentation. While not all data needs to be recorded and stored, (and users may not consent to such data storage), new interoperability standards must evolve to enable easier data sharing.[673] Electronic medical records in the USA are an example of lack of interoperability and data sharing: digital psychiatry must follow a different course. While individual technology companies and vendors will promote their own standards,[674] unified standards are required to facilitate digital communication, much in the way that international standards for internet communications allow web pages across the world to be easily viewed and shared regardless of device. The current lack of standards and paucity of guidelines for app developers is a barrier to digital psychiatry. Just as governments are creating standards for electronic health records, similar measures should address digital psychiatry tools like apps, although the scope of such will vary by country

With data flowing more freely, it is likely that patients themselves will have control over and want to access their health records, and by 2025 patients themselves will be expected to be the hub of their own health data. Movements like OpenNotes for psychiatry[675] are transforming the notion of what notes mean for mental health and they offer more information directly to patients. In the UK, myhealthlocker offers individuals with mental health problems the opportunity to write into their medical notes as well as keeping their own information.[676]

Digital psychiatry lacks data on cost effectiveness.[677] But, being able to deploy these technologies globally offers the opportunity to reach billions of people, provide tools in regions currently lacking services, and enable others to adapt existing solutions to local cultural needs. Research is showing encouraging feasibility results.[678,679] By 2025, it is possible to imagine the development of a World Health Organization digital mental health toolkit which offers basic diagnostic, monitoring, and adjunctive therapeutic tools that work across a variety of devices free of charge. Before investing in any digital psychiatry system, clinics should think carefully about how they plan to upkeep such tools and investigate possible partnerships that may save both effort and cost.

Rethinking the Clinical Workflow

The clinical integration of digital psychiatry will require a refocus of where, when, and how psychiatrists work with patients. This can be disconcerting as psychiatrists have trained in the current model of centralized care and a digital world is often unfamiliar and uncomfortable to them. The view of digital technology marginalizing psychiatrists to caretakers of electronic dashboard is far too reductionist. Computerized therapy programs have existed for decades and yet have not decreased the demand for professional face-to-face therapy services. But there will need to be explicit research into how care models and clinical workflows can integrate digital psychiatry tools, without fragmenting care, and to ensure new data streams inform clinical decision making and actions. Ben Zeev has proposed the need for a new category of health professionals called clinical technology

specialists[680] and clinicians with clinical informatics training will be critical in bridging current operations with novel technologies.

A first step will be to ensure that these tools fit the workflow of the psychiatrist. Often overlooked elements such as access to data, compensation, and legal considerations need to be considered carefully.[681] Interoperability should make it easy to access and view the patient data, compared with the isolated portals each requiring a separate login.

With patients collecting real time data outside of the clinic, psychiatrists will have access to unprecedented amounts of clinical information. Algorithms will likely help monitor for patients at risk or in need to immediate services,[682,683] and they can automatically schedule live video or in-person visits with the psychiatrist. Modalities like text messaging are showing increasing potential in psychiatry,[684] and by 2025 there will be many new ways for psychiatrists to communicate with patients. Balancing the need for on-demand contact and services with regularly scheduled follow up appointments will become the new norm. It is important that psychiatrists share their experiences and remain active in discussions, as new policies, regulations, and standards regarding how digital data are treated in clinical setting may soon be under consideration.

Conclusion

To paraphrase Bill Gates: “We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction”.[685] These words may ring very true for digital psychiatry for the next decade given the exponential pace of technological change in digital devices and data processing capability. Will the availability of preclinical digital phenotype signatures, including whole genome scans from infancy, lead to prevention of many psychiatric disorders? Will digital devices, combined with fully elucidated connectomics of brain wiring, and sophisticated neuromodulation, create a synergy that advances the field in directions currently not even realised? While all of these are within the realm of possibility, we predict that such changes will likely not happen by 2025, given the enormous ethical, practical integration and fiscal, technological challenges. Social media and Facebook have existed for over a decade, but not transformed the daily clinical practice of psychiatry.[686] In the next decade we will see change. We believe that digital devices will lead to reduced need for office visits, increase access to care for a larger number of people, and facilitate seamless integration of care. Progress will occur; however, it may not be the new digital devices but rather the development of systems and means to integrate such devices into new models of care that will enable population level impact.

This favourable scenario can be made possible only via expanded partnerships with patients and collaborations with data scientists. Novel research methods, transparency standards, clinical evidence, and care delivery models must be created for the field to utilise digital advances. Regardless of what technology can do, it will have a suboptimal impact in psychiatry unless it is

developed in a coherent manner that meets the needs of all stakeholders and addresses the core considerations outlined above. From simple innovations like better battery life for smartphones to novel analytical models, the impact of digital technologies will interact with advances in neuroscience and genetics to create a plethora of potentials. Thus, looking at what digital psychiatry will be in 2025 is not so much about predicting the future but a start to building towards that future now and here in 2017.

Part 6: Training the psychiatrist of the future

The rapid pace of scientific advances combined with evolving models of healthcare delivery have broad implications for how we train psychiatrists for the future. Medical educators and psychiatry training programs must ensure that the graduating workforce is not only armed with the latest medical knowledge and clinical skills but prepared to adapt to a changing landscape. Since new evidence based practices often take 15–20 years to become standard of care,[801] training programs must often forge ahead into uncharted territory and assist in the process of implementation and dissemination. As a result, training in psychiatry has an important role to play in setting standards for care and shaping the future of the field.

Priorities for Training in Psychiatry

In the setting of numerous advances, several training priorities will be essential for the field of psychiatry in the coming years. As research expands our understanding of the biological underpinnings of psychiatric illnesses, it will become increasingly important to integrate a contemporary neuroscience perspective alongside our other strong traditions of psychotherapy and social psychiatry.[802] To meet the growing need for mental health services, training in psychiatry will also need to focus on new models for healthcare delivery and, as a consequence, to expand training in team management, leadership, and collaborative care. [803,804] At the same time, it will be critical to train psychiatrists in strategies to integrate and harness the power of information technology. Fostering a culture of lifelong learning and providing skills training in quality improvement strategies will perhaps be most important in preparing psychiatrists for a rapidly evolving field.

Integrating a Neuroscience Perspective

Across medical specialties the focus for the last several centuries has been on understanding the physiology of the organ(s) of specialisation. Since mental disorders emerge from disruptions in normal brain function, it is clear that the "psychiatrist of the future will need to be a brain scientist." [805] Understanding normal anatomy and physiology of the brain as it relates to complex behaviours, thoughts, and emotions will be critical in understanding the pathophysiology of the illnesses we treat.

As the brain is several orders of magnitude more complex than any other organ in the body, psychiatry has faced greater challenges in developing sophisticated biological explanations for those

disorders relevant to the field. However, with new modern techniques, our understanding of brain function (and dysfunction) has expanded across multiple levels from genetics and epigenetics to neurotransmitters, second messenger systems and neural circuitry. [806] Neurobiology is rapidly expanding our understanding of psychiatric illnesses, such as depression, anxiety, and psychosis. Our appreciation of the neuroscience underlying mental illness has now extended far beyond the caricature of a "chemical imbalance." In addition, psychodynamic concepts such as our sense of self and identity, unconscious motivations, and defenses and drives are increasingly understood in terms of cognitive neuroscience. [805]

With a greater emphasis on the underlying pathophysiology, future advances in neuroscience will likely transform the way psychiatric illnesses are diagnosed and treated. Current initiatives such as the National Institute of Mental Health (NIMH) Research Domain Criteria (RDoC) in the US and the European Roadmap for Mental Health Research (ROAMER) are redefining the way we conceptualize psychiatric illness, from our current classification systems with clusters of heterogeneous symptoms to coherent cognitive, behavioural, and biological dimensions that cut across diagnostic domains. [807] Ideally, this approach will enhance our understanding of the biological underpinnings of specific symptoms. In turn, we may eventually be able to tailor treatments to individual patients based on their own unique presentation and biological data, in an ideal world of "precision" or "personalized" medicine. For example, genetic data or other biological markers may ultimately guide treatment decisions so that psychiatrists can select the best treatment option for each individual patient, maximizing the likelihood of therapeutic efficacy while minimizing the risk of drug toxicity. [808] Furthermore, we may finally be able to address the issue of "prevention" in psychiatry, in addition to focusing on diagnosis and treatment.

In order for future scientific advances to reach their full potential and move beyond the laboratory to the bedside it will be imperative for all psychiatrists to have a strong foundation in neuroscience and genetics. Inclusion of training in clinical neurology, as takes places routinely in some countries, would go some way to facilitate this. Psychiatrists will need the skill set to be able to understand the scientific literature and the implications of new research findings for their patients. They will need to understand when to order new tests and how to interpret them. In addition, psychiatrists will need to be able to effectively translate and communicate these findings to their patients in a meaningful way. For example, as the commercial availability of genetic testing expands, it will become increasingly important for psychiatrists to be able to communicate with patients about the current benefits and limitations of this type of information as it applies to the field of psychiatry. [809]

Although many findings in neuroscience have not yet translated into new treatments, we can no longer say that science is not clinically relevant for patients. At a minimum, modern scientific

explanations offer patients an opportunity to understand their psychiatric symptoms in the context of a medical paradigm, which could be particularly therapeutic in de-stigmatizing mental illness. [805]

Social/Cultural Psychiatry and Psychotherapy

As our understanding of neuroscience has advanced, it has become increasingly clear that gene expression is shaped by experience and that the expression of mental illness often emerges from an interplay between underlying neurobiology and environmental triggers.[810] With this in mind, it will be important for psychiatry to continue to emphasise the importance of the patient's individual story and the social context and experience that they bring with them.

It is widely recognised that social, religious, and cultural differences have an impact on how mental illness is defined, understood, and treated. With changing demographics among patient populations and the recent migration and refugee crisis seen throughout the world, training in cultural psychiatry remains particularly relevant. [811] Expanding access to care to distant sites through technology (such as telepsychiatry) will also require an appreciation and respect for local cultures, traditions and belief systems. [812]

The use of evidence-based non-pharmacologic treatments (such as psychoeducation and psychotherapy) will remain critical tools for treating mental illness within psychiatry. The physician's ability to form empathic, healing relationships with patients will remain a cornerstone in the practice of psychiatry. Although the field of psychiatry has historically labeled psychopharmacology as "biological" treatments and psychotherapy as "psychological" treatments, it is increasingly clear that effective treatments, whether psychotherapy or medication, alter core brain regions[813,814] and as such are all "biological" treatments. As described by Insel and Quirion, "Just as we recognize the need for rehabilitation following the acute care for any serious injury or medical illness, ideally the psychiatrist will increasingly be part of a team that provides culturally-valid, psychosocial rehabilitation along with medications to help those with mental disorders recover and return to a productive and satisfying life." [805]

Given the training demands, it is unrealistic that psychiatrists will become proficient in effectively delivering all the different types of psychotherapies available. However, psychiatrists will continue to need to know how to effectively engage and motivate patients and employ psychologically informed approaches for problem solving and safety planning. While teaching (and learning) unique therapy modalities (such as cognitive behavioural therapy or psychodynamic psychotherapy) may be ideal, psychotherapy training in the future may focus more on common factors, such as the therapeutic alliance and empathic listening, that cut across different therapies. [815] In addition, future research will likely lead to a greater understanding of how psychotherapies work and more specifically, how different psychotherapy modalities might affect brain circuits in different conditions. Psychotherapy education may similarly evolve to focus on core elements drawn from a host of different therapeutic

approaches based upon their mechanism of action. In translating these advances to practice, specific psychotherapy techniques may be taught and used "a la carte" and tailored to the patient's unique presentation and disease process. [816]

New Models for Healthcare Delivery

Although mental illness and substance use disorders are the leading cause of years lived with disability, [817] access to high quality mental healthcare is limited throughout the world. With only nine mental health providers per 100,000 people worldwide, [818] access to care is further complicated by disparities, stigma, and limited resources. Where resources do exist, the availability of mental health services are restricted by unsustainable, escalating costs and fragmented, siloed delivery models. Given these challenges, most of patients with mental illness around the globe are not seen by mental health specialists but rather in primary care settings, making primary care the "*de facto* mental health system." [819] Unfortunately, in these settings, mental health issues often go undetected, and when recognised they are frequently undertreated. [819]

To address these issues, new efforts to extend and integrate mental health services within primary care settings have emerged. These include collaborative care models whereby psychiatrists work with primary care doctors and behavioural healthcare managers to address the mental health needs within a specific patient population. Task-shifting and stepped-care approaches have also been used in low and middle income countries. In these systems, non-specialists and community health workers are trained and supervised to provide some basic mental healthcare with referrals to more specialised care when needed. [24] Telepsychiatry (or the use of real-time videoconferencing) has also been identified as an effective approach to expanding access to mental health to remote and underserved areas. [812] In well resourced countries, there has also been a push toward early intervention as a cost-effective measure.

At the same time, patients with chronic psychiatric conditions may be well connected to behavioural health settings (long-term residential care settings, or outpatient psychiatric clinics and day treatment centres) and yet lack access to general primary medical care. This is particularly concerning since many general health conditions are more prevalent among patients with severe mental illness. [821] A host of factors including lifestyle choices, side effects of psychiatric medications, and disparities in both the quality and utilisation of healthcare among patients with mental illness are likely contributors. [821] In response, proposed solutions have included embedding primary care providers in behavioural healthcare settings and extending the scope of practices of psychiatrists to include management of general medical problems in consultation with primary care physicians. [822,823]

All of these approaches have profound implications on medical training. Perhaps first and foremost is the need to reconsider what training in psychiatry, general practitioners should have. The World Health Organization has estimated that worldwide, less than 4% of training for general

physicians and nurses is dedicated to mental health. [824] Enhancing basic exposure to psychiatry within medical school and within specialised training of other primary care providers will be critical. Similarly, for psychiatrists, focused education in the management of those general health conditions most common within psychiatric patient populations (obesity, diabetes, hypertension, etc.) should be emphasised within existing training programs. For both mental and general health conditions, it will be essential for all providers to have training in general screening and preventative strategies. [825] This includes learning how to counsel patients about their lifestyle choices (particularly surrounding issues of smoking, exercise, and diet) and motivate change. [803]

To adapt to new healthcare delivery models, training in team-based approaches and population-based care will be essential. Psychiatrists will need to expand their focus from just the individual patient and provision of direct care, to also overseeing the treatment and outcomes of a larger patient cohort through registries and collaborations with emerging professional groups and other health providers (such as nurse practitioners and physicians associates). [803] As such, training in measurement based care and the use of standardized metrics to track outcomes will be important, as well as the use of information technology to manage large sets of data. [803, 33] Within these new roles, psychiatrists will also need to develop specific leadership and management skills to train and oversee a diverse cohort of providers while staying attuned to the fidelity and quality of the work. [827]

Psychiatrists will also need to become well versed in the use of technology to deliver care. With telepsychiatry gaining popularity, psychiatrists will need to comply with professional practice standards and understand the unique issues regarding privacy and confidentiality in using these types of services. [828] Psychiatrists need to learn how to work with a diverse set of providers and partners working at other sites. They will also need to learn how to build an alliance and conduct an efficient interview over technology. [812] In addition to telepsychiatry, psychiatrists will need to familiarize themselves with an emerging market of online tools that patients can use for tracking symptoms or participating in self-directed therapy (such as cognitive behavioural therapy). [829,830] Learning when and how to effectively integrate the evolving role of technology into clinical practice will be increasingly important.

Quality Improvement and "Sustainable" healthcare

In high-income countries, it typically takes 15–20 years for knowledge generated by randomised controlled trials to be incorporated into standard care. [801] This gap is plausibly even larger in low and middle income countries where resources and infrastructure is limited. To address this gap, there has been a growing emphasis on teaching quality improvement and patient safety across disciplines. [825,831] Clearly, it is not sufficient for psychiatrists to keep up to date with the literature; they must be trained in the skills necessary to adopt new evidence based practices. Developing skills in quality

improvement supports lifelong learning and emphasises that psychiatry training is not limited to a single timeframe but rather a longitudinal course that continues over one's lifetime.

Adapted from the manufacturing and airline industries, quality improvement is a systematic approach to setting goals, identifying and testing strategies to improve, and measuring performance or outcomes. Through iterative cycles of change, improved outcomes can be measured at the level of individual providers, hospital systems or care networks, and ultimately (and ideally) with patients. Such improvements then inform future "best practices" for dissemination.

Along with developing skills in quality improvement, psychiatrists will need to learn how to track and report on quality measures within the context of value-based care. [832] While many systems are pushing for concrete quality measures, "recovery oriented care" is redefining how we think about goals for treatment from simply managing symptoms to incorporating patient goals for a meaningful and satisfying life which may not translate easily into tangible, objective measures. [833]

Given the unsustainable cost of healthcare, psychiatrists will also need to develop a focus on resource management, or how to provide "the most effective, fair and sustainable use of finite resources." [834] A movement for sustainable healthcare has focused attention towards disease prevention, patient empowerment and self-care, lean service delivery, and the use of low carbon technologies in healthcare. [834] In addition to developing skills in these areas, it will be critical for psychiatrists to continue to develop skills in mental health advocacy to shape and inform government policies in a way that respects the rights of individuals with mental illness while reducing stigma and discrimination and reducing barriers to treatment. [835]

Physician Wellness

Within all disciplines of medicine, including psychiatry, there needs to be a greater emphasis on physician wellness. The inherent demands of the career along with increasing calls to do more with less, creates a high risk for burnout. Several studies have estimated burnout among residents in training to be more than 50%.[836] Burnout has been attributed to long work hours, financial difficulties, and fatigue and is associated with a decline in performance, medical errors, and problems with professionalism. [836] While simultaneously improving working conditions, it will be important to provide training in strategies that enhance resilience. It is incumbent upon training programs and employers to develop cultures that support employees and promote a positive educational environment.

Approaches for Training in Psychiatry: Not just *What* but *How*?

In preparing for the future of psychiatry, it's important to consider not just *what* to teach psychiatrists, but *how* to teach it. An expanding body of literature on adult learning is moving the field of medical education away from lecture based methods and towards more interactive, skills-based methods including simulation. Leveraging technology through online learning platforms is not

only helping to standardize training approaches but also enhancing dissemination and enabling resource sharing and new opportunities for collaborations across programs (including internationally). As new models of healthcare emerge, interdisciplinary and interprofessional training approaches will become increasingly important.

Active, Adult-Learning Approaches

Medical education has historically consisted of classroom based lectures augmented with clinical training experiences. However, lectures are particularly ineffective in transmitting information. Following a lecture, attendees only remember about 20% of the content. [837] In addition, it is not enough to simply be able to recall facts. The complexity of medicine requires that students be able to understand, synthesise, and apply this information to clinical practice. Evidence suggests that participants are more likely to learn when they're actively involved in manipulating information as opposed to being passive recipients. In response, medical educators have tapped into adult learning theory and are transforming the classroom into interactive learning sessions. Training in psychiatry should be based on principles of adult learning. Malcolm Knowles described that adult learners prefer learning to be 1) self-directed 2) experiential 3) relevant to the performance of their roles and 4) problem centred rather than subject centred. [838]

As seen across healthcare disciplines, training the psychiatrist of the future will likely involve approaches referred to as "blended learning" and the "inverted" or "flipped" classroom. In these approaches learners typically participate in a self-directed learning phase before coming to the classroom. This might include reading an article or watching a brief online video. The classroom is then reserved for more interactive learning approaches whereby trainees assimilate and apply what they've learned to reinforce learning. This may include role-play exercises or group discussion, among other techniques.

Another approach that is gaining popularity within medical education is problem-based learning (PBL). In this approach, trainees reinforce their learning by working together to solve an open-ended problem. Through PBL, trainees not only learn how to apply information they already know, they also learn to identify what additional information they need to know and how to access this information so that they can solve the problem. This also teaches collaboration and teamwork. As medical information expands, it will become increasingly difficult to "teach it all," making this skill set all the more important for future psychiatrists.

Shared Resources for Training

Historically, medical programs (including psychiatry training programs) have each worked in isolation to develop and implement training curricula. With the expansion in medical knowledge, particularly neuroscience, it is becoming increasingly difficult for each program to independently develop and cover all of the relevant material we hope future psychiatrists will know. In response, collaborations

such as the National Neuroscience Curriculum Initiative are extending across programs to develop shared open resources for teaching. [802] Additional examples of open access resources for medical education include FOAM (Free Open Access Meducation), SlideShare, MedEdPORTAL, Kahn Academy, and TED (Technology, Education and Design) Talks.

Advances in online platforms have also allowed for widespread dissemination of teaching through massive open online courses (MOOCs). MOOCs provide a variety of free online resources including lectures, videos, virtual patients, and quizzes on a variety of medical topics and are expanding our conceptualization of teaching from a classroom with a few students to an online community with potentially over 100,000 participants. Through webinars, attendees can join in from remote sites and post questions in real-time, providing another mechanism for sharing expertise across programs. [839]

These open access materials may be particularly relevant for smaller training programs with few local resources and for expanding higher education opportunities to low income countries. In a way, these types of resources may also provide a mechanism for creating more uniform teaching standards around the globe.

Integrated Training

As much as psychiatry training programs have historically worked in isolation from one another, they have also been disconnected from other disciplines and professions. As healthcare models move towards more integrated care, psychiatrists will need to train in tandem with other teams of professionals including nurses, social workers, and internal medicine doctors. Interprofessional training can be particularly helpful in preparing physicians to work within a team and communicate with other providers. [840] Students participating in interprofessional educational opportunities have reported a better understanding of each team member's professional role and more open communication and collaboration. [841]

In addition to interprofessional training, there has been growing emphasis on the role of the patient within medical education. Incorporating patients (and carers) as educators within medical training is particularly important in teaching the principles of recovery-oriented care and combatting negative stereotypes of patients with mental illness and substance use disorders. [842]

Uniform Standards and Outcome Measures

In medical education, across disciplines there has been a growing movement away from subjective outcome measures to more specific, objective, performance measures. Within the US, The Psychiatry Milestone Project has established an evaluation system to track trainee development across a series of observable behaviours. [843] The program recognises the developmental trajectory of learning, creates uniform standards, and allows programs to track individual learner strengths and areas for improvement. In addition to the milestones, medical education is also defining outcome measures

through Entrustable Professional Activities (or EPAs). While competencies are defined in terms of knowledge, skills and attitudes, they are also often vague and difficult to measure. In contrast, EPAs are clearly defined tasks that a trainee should eventually be "entrusted" to perform independently and without supervision. They often draw together several competencies and milestones. [844] For example, an EPA in psychiatry may be that the resident is able to manage "the polypharmacy of treatment resistant patients." In being able to demonstrate this skill, the resident must also be able to demonstrate competency in medical knowledge, patient care, and practice based learning and improvement. [844]

Educational activities and evaluation strategies are also becoming more uniform through standardized patients, simulation, and virtual patients. Although multiple choice examinations continue to have a role in assessing medical knowledge, there is growing recognition that this knowledge does not necessarily translate to the skills necessary to develop an alliance with a patient, conduct an efficient and thorough patient interview, and synthesise an appropriate formulation and treatment plan. Objective structured clinical examinations (OSCEs) are becoming more common place along with the use of standardized patients. The clinical skills evaluation required by the American Board of Psychiatry and Neurology for board eligibility, requires that residents in training pass several observed patient interviews and presentations with board certified psychiatrist using a structured, standardized rating form. Standards set by the Royal College of Psychiatrists are similar.

Similar to expectations for practicing psychiatrists, it is likely that trainees will also be evaluated based upon specific quality performance indicators and compliance with evidence based standards. In addition, patient feedback will become increasingly important information in evaluating learners along with input from other members of the team (or 360-degree evaluations).

While training standards are becoming more uniform for those programs that fall under specific accreditation systems, psychiatry training remains variable around the world in terms of the length of training, specific training requirements, and how competency is defined and measured. Challenges for the future include balancing standardized training while meeting the needs and realities of each local context. Regardless, worldwide shortages in psychiatry make recruitment to the field a critical issue in the future of psychiatry training.

Continuing Education

In training the psychiatrist of the future, it is critical to keep in mind that the education mission is not only important for new generations of psychiatrists entering the field but also for those practicing psychiatrists who must keep up to date with new advances. To teach trainees, training programs must make sure that clinicians and supervisors are also up to date with the latest evidence based practices. As such, training programs are often the vanguard in pushing the field forward. As described here, the task is not only to keep the field up to date with the latest advances in psychiatry

but also within medical education. As such, teaching trainees how to teach will also be critical to sustaining advances in the field.

While continuing medical education efforts continue to focus predominately on medical knowledge, individual accreditation and certification programs (such as the American Board of Psychiatry and Neurology and the Royal College of Psychiatrists) now recognise the important role of performance in practice and systematically evaluating practice habits in conjunction with new standards. In addition, there is a greater emphasis on incorporating peer and patient feedback into practice. Ideally better integration of lifelong learning habits within psychiatry training programs will have long-term benefits.

Conclusion

Training in psychiatry requires not only transmitting current knowledge to new learners, but also taking stock of where the field is headed and preparing learners for new developments that lie on the horizon. As the amount of "content" learners need to know expands, it will become increasingly important for training programs in psychiatry to leverage shared resources in addition to maintaining focus on the "process" of teaching and how to best engage learners. These are all crucial issues as we move to an age where knowing facts is less important than accessing and deploying new knowledge in an integrated, quality conscious, patient focused manner. Advances in neuroscience research, technology, and health service delivery models are likely to continue to evolve, making a commitment to lifelong learning and quality improvement particularly critical.

Conclusion: end of the beginning, or beginning of the end?

As is evident from this report, psychiatry as a speciality faces major changes and challenges ahead. A revolution is on the way—and we need to take hold of the flag and lead from the front.

As psychiatrists, we need to work with key stakeholders including policy makers and patients to help plan, deliver, and ensure that no matter where in the world our patients live, they get the best services possible within the constraints of resources. Mental health professionals need to be well trained in integrating biological, psychological, social, and spiritual factors in the care that they provide. The contract between psychiatry and society needs to be renegotiated on a regular basis, so that clinicians and policymakers are truly representative of society, and are aware of the needs of patients and strengths of the profession. There are responsibilities and expectations on each side: both psychiatrists and the members of society must be fully cognisant of what each party can deliver. The ultimate aim is to provide services which are emotionally accessible, non-stigmatising, and meet the needs of some of the most vulnerable individuals in the society.

At present, this contract is implicit and not explicit. This has to be made transparent, and based on mutual expectations and psychiatry's role, responsibilities, and relationships not only with society as a whole, but also with stakeholders who include policy makers, other health and social care professionals, health service managers, service users, carers and families, the media, and politicians. This approach is needed to develop advocacy and support so that mental health services and mental health research receive the resources they need. Psychiatrists as physicians must primarily demonstrate the specific benefits they bring to wider society and individual service users; while stakeholders in society, such as the state, other health professionals, service users and the media, need to acknowledge their responsibilities to support psychiatry and enable it to do its job effectively.

Psychiatrists are not only clinicians, but also members of the society where they live and work. They therefore have dual roles as advocates for all patients in general, and for psychiatric patients in particular. Better co-ordinated and integrated care will benefit not only our patients but also society as a whole. We have to take on board the public mental health agenda with a greater consistency as part of a new professionalism. The challenges for psychiatry include resource pressures, as well as stigma and mistrust against our patients, the subject, and the profession—which often feels marginalised, de-professionalised, and undervalued. Therefore educating the psychiatrists, the public, and other stakeholders in developing and sharing examples of good practice is an important step. In order to achieve all this, clinical leadership by psychiatrists is a must. With patients and health professionals, psychiatrists need to advocate for patients and the profession, being open and honest about our strengths and weaknesses.

Society, meanwhile, needs to acknowledge and meet the needs of psychiatric patients. Furthermore, the social determinants of mental illness and the role of social discrimination in the causation of mental illness deserve study, but adequate financial resources need to be committed. Both advocacy against poverty and unemployment and equitable funding into neurosciences and social research is needed. Psychiatrists need to be skilled, competent, professional, and collaborative.

This WPA-Lancet Psychiatry Report has set the scene for psychiatry in the first half of the 21st century. The future cannot be predicted, but it is important to remain professional as well as retain our professional values which are fit for purpose and be prepared for major changes in healthcare and healthcare systems. This is the beginning, and not the end—perhaps it is not even the end of the beginning.

Panel 1: Strategies to reduce delays due to care pathways

• Interact – and train when needed – key community actors (traditional healers, community health workers, teachers) to identify, perform basic interventions and refer to primary care level professionals.[225]

• Primary health care (PHC) facilities should have basic skills to identify, treat and refer when needed to secondary care. Once the psychiatrist receives and treats the patient, the person should be referred back to PHC for follow up, and back to the community leaders, as suitable. The interaction between community actors, PHC professionals and specialised ones is crucial, with training and supervision being a key component.[205]

• An essential role of the psychiatrist across the entire pathway to care is to interact with main actors in all levels of care to ensure capacity building – specific training, and supervision to those who need it.[204]

Panel 2: Needs a title and citation position checked

Nicaragua is one the poorest countries in Central America.[233] High rates of mental illness and addictions have been documented among its youth,[234,235] partly contributed to by limited mental health services.[236] Lack of knowledge and the stigma of mental illness further reduce help-seeking.[237] School-based mental health literacy programmes have shown effectiveness in improving mental health knowledge, coping skills and resilience, increasing help-seeking, and reducing stigma among young people.[238] The Mental Health Curriculum is a school-based programme developed and piloted in Canada.[239] The validity of the programme for low and middle income countries was tested in Nicaragua.

The Mental Health Curriculum was implemented among high school and university students in Nicaragua after cultural and linguistic adaptation. Over 900 students were assigned to the 12-week intervention or to wait-list control. The students who received the intervention reported greater mental health knowledge, lower stigma, and better adaptive coping, help seeking, and healthy lifestyle choices than those in the control group. Substance abuse scores in the intervention group were reduced to become similar to the control group. The findings replicate results found in Canadian student populations and support the cross-cultural applicability of the MHC to youth in LMICs.

Panel 3: The Service User Perspective, Professor Diana Rose

There are those who have experienced coercion and compulsion who make the following points:-

• First, to be satisfied with mental health legislation in some countries (mostly the industrialised West) yet concerned about enduring stigma and discrimination is a contradiction. By representing

mental health service users as risky, unpredictable and dangerous, mental health legislation confirms and extends stigmatising discourse.

• Second, mental health legislation has been called 'discriminatory' by some psychiatrists and lawyers who then go onto suggest generic 'capacity' legislation covering both physical and mental health.[509] Whilst on the face of it an improvement, this begs many questions of how 'capacity' is defined and by whom; who decides what 'best interests' are and even how 'will and preferences' are to be assessed.

• Third, there is agreement by many that there is a place for involuntary admission in very limited circumstances and given the current configuration of services in many countries. However involuntary admissions are experienced by some as unjust infringements of autonomy and permanent threats to independence.[510,511] Thus, the circumstances under which they should occur are extremely limited and current mental health legislation of whatever nature is simply not adequate to conceptualise and implement such provisions. There are those who feel that mental health legislation may not be needed at all. In service user circles, there is controversy about this even where there is consensus regarding the damaging aspects of mental health legislation (compare Minkowitz and Plumb in Spandler, Anderson et al, 2015).[512]

• Fourth, and most controversially, some service users have fundamental doubts about WHO policy to model mental health legislation in countries where it is 'lacking' on that which exists in the 'developed' world.[538] Western psychiatry needs to put its own house in order before telling others what to do. As people who have experienced this, we know much is wrong and it is deteriorating.[513] The debate has intensified with the endorsement by many countries of the Convention on the Rights of Persons with Disabilities[516] (CRPD) and then again by publication of the General Comment on Article 12. Mainstream psychiatry has hit back and in the process called service users who support the General Comment 'unrepresentative'.[514] No doubt there are service users who agree but there are others who do not and who is to adjudicate 'representativeness' here? To close with an example. The Pan-African Network of Persons with Psychosocial Disabilities recently changed its name from the Pan-African Network of Users and Survivors of Psychiatry. This was not just an affirmation of the term used in the CRPD. It was also a statement proclaiming that such psychiatry as exists on the African continent continues to have colonial overtones and at the same time is characterised by squalid and coercive conditions even where formal coercion is absent. Extending this within a Western framework is not appealing to members of this Pan-African Network or others like it in the Global South.

• In some jurisdictions service users counsel a move from shared decision making to supported decision making and this is in line with the General Comment on Article 12 of the CRPD (Roper personal communication 21/12/16). This position was proposed in Australia and would not apply

where the mental health workforce is limited and advocacy, including peer advocacy, more appropriate.[515]

Panel 4: Providing good mental healthcare – common challenges across jurisdictions

• Providing access to mental health care for people who need it.

• Parity of access to mental health and physical health care.

• Protecting and promoting the rights of people with mental disorder, in relation not only to psychiatric care and treatment but also to participating fully in education, work and their families and communities.

• Supporting people with mental disorders in their decision making, if they lack capacity

• Providing mental health care to people who have committed offences that is equivalent to that available for those not involved in the criminal justice system.

• Striving for good practice, high standards and well trained mental health professionals.

Figure 1: **WHO Pyramid of Care**
Reproduced from WHO.[216]

Figure 2: **[A: Needs title]**
Figure 3: **RDoC, Digital Psychiatry Tools, and Digital Phenotyping**
Figure 4: **Targets for progress in digital psychiatry**
[A: Needs in-text citation]

The central role of patient and clinician engagement is reflected in this venn diagram. All targets are integrally related to each other (not shown in figure)

Figure 5: **Flipped classroom**
[A: Needs in-text citation]

References

1 Mental Health Atlas. 2014, WHO, Geneva, 2014.

2 Tasman A, Sartorius N, Saraceno B. Addressing Mental Health Resource Deficiencies in Pacific Rim Countries. *Asia-Pac Psychiatry* 2009; **1:** 3–8.

3 Mental Health: A Report of the Surgeon General, Rockville, Md, US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, 1999.

4 Pew Research Center. Attitudes about aging & global perspective: population change in the U.S. and the world from 1950 to 2010. 2010.www.pewglobal.org/2014/01/30/chapter-4-population-change-in –the-u-s-and the world from 1950-to-2050/ (accessed Nov 17,2016)

5 Glatzer W, Camfield L, Moller V, Rojas M, eds. Global handbook of quality of life: exploration of well-being of nations and continents. Dordrecht: Springer, 2015. https://books.google.co.th/books?isbn=9401791783 (accessed Nov 17,2016)

6 Moorjani P. Factbox: 10 facts about fast urban growth on World Cities Day. London: Thomson Reuters Foundation,2016.

7 Jennings S. Oxfam research report. Time's bitter flood: trends in the number of report natural disasters. Oxford: Oxfam GB, 2011.

8 Udomratn P. Mental health and the psychosocial consequences of natural disasters in Asia. *Int Rev Psychiatry* 2008; **20:** 441–44.

9 World Association of Cultural Psychiatry (WACP). Position Statement on the World migration phenomena, Puerto Vallarta Declaration. World Congress of CP, Oct 31-Nov 2, 2015.

10 Demir Y, Katlu M. The relationship between loneliness and depression: mediation role of internet addiction. *Edu P Int J* 2016; **5:** 97–105. DOI: 10.12973/edupij.2016.52.1.

11 Lim RF, ed. *Clinical Manual of Cultural Psychiatry.* Arlington, VA: American Psychiatric Publishing, 2015.

12 Kleinman A. The Illness Narratives: Suffering, Healing and the Human Condition. New York: Basic Books, 1988.

13 Alarcón RD. Culture, cultural factors and psychiatric diagnosis: review and projections. *World Psychiatry* 2009; **8:** 131–39.

14 Diagnostic and statistical manual of mental disorders: DSM-5, Washington, DC: American Psychiatric Association, 2013.

15 Lewis-Fernández R, Aggarwal NK, Hinton L, et al, eds. DSM-5 Handbook on the Cultural Formulation Interview. Washington DC: American Psychiatric Publishing, 2016.

16 Lewis-Fernández R, Aggarwal NK, Lam P, et al. Feasibility, Acceptability and Clinical Utility of the Cultural Formulation Interview: Mixed-Methods result from DSM-5 international field trial. *Br J Psychiatry* 2017; **210:** 290–97.

17 Mendenhall TJ, Berge JM. Family therapists in trauma-response teams: Bringing systems thinking into interdisciplinary fieldwork. *J Fam Ther* 2010; **32:** 43–57.

18 Fink P, Tasman A, eds. Stigma and Mental Illness, APPI, Washington, D.C., 1992, pp xi–xiii

19 Nortje G, Oladeji B, Gureje O, Seedat S. Effectiveness of traditional healers in treating mental disorders: a systematic review. *Lancet Psychiatry* 2016; **3:** 154–70.

20 Weisner TS, Hay MC. Practice to research: integrating evidence-based practices with culture and context. *Transcult Psychiatry* 2015; **52:** 222–43.

21 Kirmayer LJ, Fung K, Rousseau C et al. Guidelines for Training in Cultural Psychiatry. *Position Paper from the Canadian Psychiatric Association*, Sept. 28, 2011.

22 Gaebel W, Zäske H, Zielasek J, et al. Stigmatization of psychiatrists and general practitioners: results of an international survey. *Eur Arch Psychiatry Clin Neurosci* 2015; **265:** 189–97.

23 Abdullah T, Brown TL. Mental illness stigma and ethnocultural beliefs, values, and norms: an integrative review. *Clin Psychol Rev* 2011; **31:** 934–48.

24 Joshi R, Alim M, Kengne AP, et al. Task shifting for non-communicable disease management in low and middle income countries--a systematic review. *PLoS One* 2014; **9:** e103754.

25 Widiger TA, Clark LA. Toward DSM-V and the classification of psychopathology. *Psychol Bull* 2000; **126:** 946–63.

26 Rounsaville B, Alarcon R, Andrews G, Jackson J, Kendell R, Kendler KS. Basic Nomenclature Issues for DSM-V. In: Kupfer D, First M, Regier D, editors. Research Agenda for DSM-V. Washington, D.C.: American Psychiatric Association; 2002. p. 1-30.

27 First MB. Paradigm shifts and the development of the diagnostic and statistical manual of mental disorders: past experiences and future aspirations. *Can J Psychiatry* 2010; **55:** 692–700.

28 Kupfer D, First MB, Regier DA, eds. A Research Agenda for DSM-V. Washington, D.C.: American Psychiatric Publishing, Inc.; 2002.

29 Hyman SE. The diagnosis of mental disorders: the problem of reification. *Annu Rev Clin Psychol* 2010; **6:** 155–79.

30 Insel T, Cuthbert B, Garvey M, et al. Research domain criteria (RDoC): toward a new classification framework for research on mental disorders. *Am J Psychiatry* 2010; **167:** 748–51.

31 Cuthbert BN. The RDoC framework: facilitating transition from ICD/DSM to dimensional approaches that integrate neuroscience and psychopathology. *World Psychiatry* 2014; **13:** 28–35.

32 First MB. Adopting a continuous improvement model for future DSM revisions. *World Psychiatry* 2016; **15:** 223–24.

33 Harding KJ, Rush AJ, Arbuckle M, Trivedi MH, Pincus HA. Measurement-based care in psychiatric practice: a policy framework for implementation. *J Clin Psychiatry* 2011; **72:** 1136–43.

34 Zimmerman M, McGlinchey JB. Why don't psychiatrists use scales to measure outcome when treating depressed patients? *J Clin Psychiatry* 2008; **69:** 1916–19.

35 Valenstein M, Adler DA, Berlant J, et al. Implementing standardized assessments in clinical care: now's the time. *Psychiatr Serv* 2009; **60:** 1372–75.

36 Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; **16:** 606–13.

37 Narrow WE, Clarke DE, Kuramoto SJ, et al. DSM-5 field trials in the United States and Canada, Part III: development and reliability testing of a cross-cutting symptom assessment for DSM-5. *Am J Psychiatry* 2013; **170:** 71–82.

38 Mościcki EK, Clarke DE, Kuramoto SJ, et al. Testing DSM-5 in routine clinical practice settings: feasibility and clinical utility. *Psychiatr Serv* 2013; **64:** 952–60.

39 First MB. Clinical Utility in the Revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM). *Prof Psychol Res Pr* 2010; **41:** 465–73.

40 Escott-Price V, Sims R, Bannister C, et al, and the GERAD/PERADES, and the IGAP consortia. Common polygenic variation

enhances risk prediction for Alzheimer's disease. *Brain* 2015; **138:** 3673–84.

41 Reed GM, Mendonça Correia J, Esparza P, Saxena S, Maj M. The WPA-WHO Global Survey of Psychiatrists' Attitudes Towards Mental Disorders Classification. *World Psychiatry* 2011; **10:** 118–31.

42 Yang Y, Muzny DM, Reid JG, et al. Clinical whole-exome sequencing for the diagnosis of mendelian disorders. *N Engl J Med* 2013; **369:** 1502–11. DOI:10.1056/NEJMoa1306555.

43 Currier GW, Fisher SG, Caine ED. Mobile crisis team intervention to enhance linkage of discharged suicidal emergency department patients to outpatient psychiatric services: a randomized controlled trial. *Acad Emerg Med* 2010; **17:** 36–43.

XX Collins FS, Varmus H. A new initiative on precision medicine. *N Engl J Med* 2015; **372:** 793–95. **[A: Not cited?]**

44 Mrazek DA. Psychiatric Pharmacogenomics. Oxford, UK: Oxford University Press, 2010.

45 Schwab M, Kaschka WPO, Spina E, eds. Pharmacogenomics in Psychiatry. Basel: Karger, 2010.

46 Dunlop BW, Kelley ME, McGrath CL, Craighead WE, Mayberg HS. Preliminary Findings Supporting Insula Metabolic Activity as a Predictor of Outcome to Psychotherapy and Medication Treatments for Depression. *J Neuropsychiatry Clin Neurosci* 2015; **27:** 237–39.

47 Goldstein-Piekarski AN, Korgaonkar MS, Green E, et al. Human amygdala engagement moderated by early life stress exposure is a biobehavioral target for predicting recovery on antidepressants. *Proc Natl Acad Sci USA* 2016; **113:** 11955–60.

48 Burton C, Szentagotai Tatar A, McKinstry B, et al, and the Help4Mood Consortium. Pilot randomised controlled trial of Help4Mood, an embodied virtual agent-based system to support treatment of depression. *J Telemed Telecare* 2016; **22:** 348–55.

49 Vahabzadeh A, Sahin N, Kalali A. Digital Suicide Prevention: Can Technology Become a Game-changer? *Innov Clin Neurosci* 2016; **13:** 16–20.

50 Hunter DJ. Uncertainty in the Era of Precision Medicine. *N Engl J Med* 2016; **375:** 711–13.

51 Liu Y, Ho RC, Mak A. Interleukin (IL)-6, tumour necrosis factor alpha (TNF-α) and soluble interleukin-2 receptors (sIL-2R) are elevated in patients with major depressive disorder: a meta-analysis and meta-regression. *J Affect Disord* 2012; **139:** 230–39.

52 Lund-Sørensen H, Benros ME, Madsen T, et al. A Nationwide Cohort Study of the Association Between Hospitalization With Infection and Risk of Death by Suicide. *JAMA Psychiatry* 2016; **73:** 912–19.

53 Rao G, Mashkouri S, Aum D, Marcet P, Borlongan CV. Contemplating stem cell therapy for epilepsy-induced neuropsychiatric symptoms. *Neuropsychiatr Dis Treat* 2017; **13:** 585–96.

54 Glasser MF, Coalson TS, Robinson EC, et al. A multi-modal parcellation of human cerebral cortex. *Nature* 2016; **536:** 171–78.

55 Wurzman R, Hamilton RH, Pascual-Leone A, Fox MD. An open letter concerning do-it-yourself users of transcranial direct current stimulation. *Ann Neurol* 2016; **80:** 1–4.

56 Simpkin AL, Schwartzstein RM. Tolerating Uncertainty - The Next Medical Revolution? *N Engl J Med* 2016; **375:** 1713–15.

57 Klengel T, Mehta D, Anacker C, et al. Allele-specific *FKBP5* DNA demethylation mediates gene-childhood trauma interactions. *Nat Neurosci* 2013; **16:** 33–41.

58 Tasman A. Lost in the DSM-IV Checklist : Empathy, Meaning, and the Doctor--Patient Relationship. *Acad Psychiatry* 2002; **26:** 38–44.

59 Cassel CK, Reuben DB. Specialization, subspecialization, and subsubspecialization in internal medicine. *N Engl J Med* 2011; **364:** 1169–73.

60 Patel V. The future of psychiatry in low- and middle-income countries. *Psychol Med* 2009; **39:** 1759–62.

61 Patel V, Xiao S, Chen H, et al. The magnitude of and health system responses to the mental health treatment gap in adults in India and China. *Lancet* 2016; **388:** 3074–84.

62 Warner JP. Old age psychiatry in the modern age. *Br J Psychiatry* 2015; **207:** 375–76.

63 Charlson FJ, Baxter AJ, Cheng HG, Shidhaye R, Whiteford HA. The burden of mental, neurological, and substance use disorders in China and India: a systematic analysis of community representative epidemiological studies. *Lancet* 2016; **388:** 376–89.

64 Xiong W, Phillips MR. Translated and annotated version of the 2015-2020 National Mental Health Work Plan of the People's Republic of China. *Shanghai Arch Psychiatry* 2016; **28:** 4–17.

201 Shidhaye R, Lund C, Chisholm D. Closing the treatment gap for mental, neurological and substance use disorders by strengthening existing health care platforms: strategies for delivery and integration of evidence-based interventions. *Int J Ment Health Syst* 2015; **9:** 40.

202 World Health Organization. WHO | WHO Mental Health Gap Action Programme (mhGAP) [Internet]. Geneva: World Health Organization; 2010 [cited 2016 Dec 9] p. 107. Available from: http://www.who.int/mental_health/mhgap/en/

203 World Health Organization. The World Health Report | Chapter 1: A public health approach to mental health [Internet]. WHO. 2001 [cited 2016 Dec 9]. Available from: http://www.who.int/whr/2001/chapter1/en/print.html

204 Fricchione GL, Borba CPC, Alem A, Shibre T, Carney JR, Henderson DC. Capacity building in global mental health: professional training. *Harv Rev Psychiatry* 2012; **20:** 47–57.

205 World Health Organization. WHO | Human resources and training in mental health [Internet]. 2005 [cited 2016 Dec 9]. 123 p. (WHO mental health policy and service guidance package). Available from: http://www.who.int/mental_health/policy/services/essentialpackage1v9/en/

206 World Health Organization. WHO | Mental health financing [Internet]. Geneva: World Health Organization; 2003 [cited 2016 Dec 9] p. 62. (Mental Health Policy and Service Guidance Package). Available from: http://www.who.int/mental_health/policy/services/essentialpackage1v4/en/

207 Elarabi HM, Johari F. The Impact of Human Resource Management on Healthcare Quality. *Asian J Manag Sci Educ* 2014; **1:** 13–22.

208 Kabene SM, Orchard C, Howard JM, Soriano MA, Leduc R. The importance of human resources management in health care: a global context. *Hum Resour Health* 2006; **4:** 20.

209 Kakuma R, Minas H, van Ginneken N, et al. Human resources for mental health care: current situation and strategies for action. *Lancet* 2011; **378:** 1654–63.

210 WHO. WHO | Integrating mental health into primary care: a global perspective [Internet]. WHO. 2008 [cited 2014 Aug 12]. Available from: http://www.who.int/mental_health/policy/services/integratingmhintoprimarycare/en/

211 Patel V. Universal Health Coverage for Schizophrenia: A Global Mental Health Priority. *Schizophr Bull* 2016; **42:** 885–90.

212 Basu S, Andrews J, Kishore S, Panjabi R, Stuckler D. Comparative performance of private and public healthcare systems in low- and middle-income countries: a systematic review. *PLoS Med* 2012; **9:** e1001244.

213 WHO. | Sustainable Development Goal 3: Health [Internet]. WHO. [cited 2017 Feb 17]. Available from: http://www.who.int/topics/sustainable-development-goals/targets/en/

214 Sachs JD. From millennium development goals to sustainable development goals. *Lancet* 2012; **379:** 2206–11.

215 World Health Organization. Improving health systems and services for mental health [Internet]. 2009 [cited 2017 Feb 16]. Available from: http://www.who.int/iris/handle/10665/44219

216 Improving health systems and services for mental health. Geneva: World Health Organization; 2009.

217 Volpe U, Mihai A, Jordanova V, Sartorius N. The pathways to mental healthcare worldwide: a systematic review. *Curr Opin Psychiatry* 2015; **28:** 299–306.

218 Evans-Lacko S, Jarrett M, McCrone P, Thornicroft G. Facilitators and barriers to implementing clinical care pathways. *BMC Health Serv Res* 2010; **10:** 182.

219 Prabhu A, Vishnu Vardhan G, Pandit LV. Pathways to tertiary care adopted by individuals with psychiatric illness. *Asian J Psychiatr* 2015; **16:** 32–35.

220 Kisa R, Baingana F, Kajungu R, et al. Pathways and access to mental health care services by persons living with severe mental disorders and epilepsy in Uganda, Liberia and Nepal: a qualitative study. *BMC Psychiatry* 2016; **16:** 305.

221 Thornicroft G, Brohan E, Rose D, Sartorius N, Leese M, and the INDIGO Study Group. Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey. *Lancet* 2009; **373:** 408–15.

222 Gronholm PC, Thornicroft G, Laurens KR, Evans-Lacko S. Conditional Disclosure on Pathways to Care: Coping Preferences of Young People at Risk of Psychosis. *Qual Health Res* 2016; 1049732316680337.

223 Ferrari M, Flora N, Anderson KK, et al, and the ACE Project Team. Gender differences in pathways to care for early psychosis. *Early Interv Psychiatry* 2016; DOI: 10.1111/eip.12324.

224 Woltmann E, Grogan-Kaylor A, Perron B, Georges H, Kilbourne AM, Bauer MS. Comparative effectiveness of collaborative chronic care models for mental health conditions across primary, specialty, and behavioral health care settings: systematic review and meta-analysis. *Am J Psychiatry* 2012; **169:** 790–804.

225 Pedrini L, Sisti D, Tiberti A, et al. Reasons and pathways of first-time consultations at child and adolescent mental health services in Italy: an observational study. *Child Adolesc Psychiatry Ment Health* 2015; **9:** 29.

226 Wing JK. The functions of asylum. *Br J Psychiatry* 1990; **157:** 822–27.

227 Trieman N, Leff J, Glover G. Outcome of long stay psychiatric patients resettled in the community: prospective cohort study. *BMJ* 1999; **319:** 13–16.

228 Saxena S, Sharan P, Saraceno B. Budget and financing of mental health services: baseline information on 89 countries from WHO's project atlas. *J Ment Health Policy Econ* 2003; **6:** 135–43.

229 Stergiopoulos V, Schuler A, Nisenbaum R, et al. The effectiveness of an integrated collaborative care model vs. a shifted outpatient collaborative care model on community functioning, residential stability, and health service use among homeless adults with mental illness: a quasi-experimental study. *BMC Health Serv Res* 2015; **15:** 348.

230 Hunt IM, Kapur N, Webb R, et al. Suicide in current psychiatric in-patients: a case-control study The National Confidential Inquiry into Suicide and Homicide. *Psychol Med* 2007; **37:** 831–37.

231 Eaton J, McCay L, Semrau M, et al. Scale up of services for mental health in low-income and middle-income countries. *Lancet* 2011; **378:** 1592–603.

232 Lund C, Tomlinson M, Patel V. Integration of mental health into primary care in low- and middle-income countries: the PRIME mental healthcare plans. *Br J Psychiatry* 2016; **208** (suppl 56)**:** s1–3.

233 Central Intelligence Agency. (2016). The World Factbook. Nicaragua. Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/nu.html

234 Rodríguez AH, Caldera T, Kullgren G, Renberg ES. Suicidal expressions among young people in Nicaragua: a community-based study. *Soc Psychiatry Psychiatr Epidemiol* 2006; **41:** 692–97.

235 United Nations Office on Drugs and Crime. (2010). Nicaragua: Drug abuse and drug dependence treatment situation. Available at: http://www.unodc.org/docs/treatment/CoPro/Web_Nicaragua.pdf.

236 Jacob KS, Sharan P, Mirza I, et al. Mental health systems in countries: where are we now? *Lancet* 2007; **370:** 1061–77.

237 Obando Medina C, Kullgren G, Dahlblom K. A qualitative study on primary health care professionals' perceptions of mental health, suicidal problems and help-seeking among young people in Nicaragua. *BMC Fam Pract* 2014; **15:** 129.

238 Weare K, Nind M. Mental health promotion and problem prevention in schools: what does the evidence say? *Health Promot Int* 2011; **26** (suppl 1)**:** i29–69.

239 Kutcher S. (2012). Mental Health & High School Curriculum Guide: Understanding Mental Health and Mental Illness. CreateSpace Independent Publishing Platform.

240 Scott KM, Lim C, Al-Hamzawi A, et al. Association of Mental Disorders With Subsequent Chronic Physical Conditions: World Mental Health Surveys From 17 Countries. *JAMA Psychiatry* 2016; **73:** 150–58.

241 De Hert M, Detraux J, van Winkel R, Yu W, Correll CU. Metabolic and cardiovascular adverse effects associated with antipsychotic drugs. *Nat Rev Endocrinol* 2011; **8:** 114–26.

242 Kessler RC, Ormel J, Demler O, Stang PE. Comorbid mental disorders account for the role impairment of commonly occurring chronic physical disorders: results from the National Comorbidity Survey. *J Occup Environ Med* 2003; **45:** 1257–66.

243 Thornicroft G, Alem A, Antunes Dos Santos R, et al. WPA guidance on steps, obstacles and mistakes to avoid in the implementation of community mental health care. *World Psychiatry* 2010; **9:** 67–77.

244 Thornicroft G, Tansella M. Growing recognition of the importance of service user involvement in mental health service planning and evaluation. *Epidemiol Psichiatr Soc* 2005; **14:** 1–3.

245 Thornicroft G, Deb T, Henderson C. Community mental health care worldwide: current status and further developments. *World Psychiatry* 2016; **15:** 276–86.

246 Herrman H, Saxena S, Moodie R. OMS, Foundation VHP, Melbourne U of. Promoting mental health: concepts, emerging evidence, practice [Internet]. OMS; 2005 [cited 2016 Dec 9]. Available from: http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=REPIDISCA&lang=p&nextAction=lnk&exprSearch=172684&indexSearch=ID

247 Saxena S, Sharan P, Garrido M, Saraceno B. World Health Organization's Mental Health Atlas 2005:implications for policy development. *World Psychiatry* 2006; **5:** 179–84.

248 Beddington J, Cooper CL, Field J, et al. The mental wealth of nations. *Nature* 2008; **455:** 1057–60.

249 Goffman E. The Characteritics of Total Institution. In: Organization and Society [Internet]. [cited 2016 Dec 9]. Available from: http://is.muni.cz/el/1423/podzim2009/SOC139/um/soc139_16_Goffman.pdf

250 Chow WS, Priebe S. Understanding psychiatric institutionalization: a conceptual review. *BMC Psychiatry* 2013; **13:** 169.

251 Fakhoury W, Priebe S. The process of deinstitutionalization: an international overview. *Curr Opin Psychiatry* 2002; **15:** 187–92.

252 Muijen M. Focus on mental health care reforms in Europe. Mental health services in Europe: an overview. *Psychiatr Serv* 2008; **59:** 479–82.

253 Chisholm D, Flisher AJ, Lund C, et al, and the Lancet Global Mental Health Group. Scale up services for mental disorders: a call for action. *Lancet* 2007; **370:** 1241–52.

255 Farooq S, Minhas FA. Community psychiatry in developing countries — a misnomer? *Psychiatrist* 2001; **25:** 226–27.

256 Saxena S, Thornicroft G, Knapp M, Whiteford H. Resources for mental health: scarcity, inequity, and inefficiency. *Lancet* 2007; **370:** 878–89.

257 Muijen M. Challenges for psychiatry: delivering the Mental Health Declaration for Europe. *World Psychiatry* 2006; **5:** 113–17.

258 Patel V. Mental health in low- and middle-income countries. *Br Med Bull* 2007; **81-82:** 81–96.

259 Knapp MRJ, McDaid D, Parsonage M, eds. Mental health promotion and mental illness prevention: the economic case. London: Department of Health, 2011.

260 World Health Organization. WHO | Mental health systems in selected low- and middle-income countries [Internet]. World Health Organization; 2009 [cited 2016 Dec 9]. Available from: http://www.who.int/mental_health/publications/who_aims_cross_national_analysis/en/

261 Cohen A, Minas H. Global mental health and psychiatric institutions in the 21st century. *Epidemiol Psychiatr Sci* 2017; **26:** 4–9.

301 Burns T. *Our Necessary Shadow: The Nature and Meaning of Psychiatry*, Allen Lane: London 2013.

302 Bhugra D, Malik A, Ikkos G, eds. *Psychiatry's Contract with Society*, Oxford University Press: Oxford 2010.

303 United Nations. *Convention on the rights of person with disabilities*. 2007, Geneva. http://www.un.org/disabilities/convention/conventionfull.shtml

304 Valenti E, Banks C, Calcedo-Barba A, et al. Informal coercion in psychiatry: a focus group study of attitudes and experiences of mental health professionals in ten countries. *Soc Psychiatry Psychiatr Epidemiol* 2015; **50:** 1297–308.

305 Aggarwal NK, Desilva R, Nicasio AV, Boiler M, Lewis-Fernández R. Does the Cultural Formulation Interview for the fifth revision of the diagnostic and statistical manual of mental disorders (DSM-5) affect medical communication? A qualitative exploratory study from the New York site. *Ethn Health* 2015; **20:** 1–28.

306 Martin N. From discrimination to social inclusion: A review of the literature on anti-stigma initiatives in mental health. *Brisbane: Queensland Alliance* 2009.

307 Morgan C, Burns T, Fitzpatrick R, Pinfold V, Priebe S. Social exclusion and mental health: conceptual and methodological review. *Br J Psychiatry* 2007; **191:** 477–83.

308 Mehta N, Clement S, Marcus E, et al. Evidence for effective interventions to reduce mental health-related stigma and discrimination in the medium and long term: systematic review. *Br J Psychiatry* 2015; **207:** 377–84.

309 Allen J, Balfour R, Bell R, Marmot M. Social determinants of mental health. *Int Rev Psychiatry* 2014; **26:** 392–407.

310 Burns JK. Poverty, inequality and a political economy of mental health. *Epidemiol Psychiatr Sci* 2015; **24:** 107–13.

311 De Silva MJ. Making mental health an integral part of sustainable development: the contribution of a social determinants framework. *Epidemiol Psychiatr Sci* 2015; **24:** 100–06.

312 Faris REL, Dunham HW. *Mental Disorders in Urban Areas. An Ecological Study of Schizophrenia and other Psychoses*. The University of Chicago Press, Chicago, 1939.

313 Lederbogen F, Kirsch P, Haddad L, et al. City living and urban upbringing affect neural social stress processing in humans. *Nature* 2011; **474:** 498–501.

314 McKenzie K. Urbanization social capital and mental health. *Glob Soc Policy* 2008; **8:** 359–77.

315 Morgan C, McKenzie K, Fearon P, eds. *Society and Psychosis.* Cambridge University Press: Cambridge, 2008.

316 van Os J, Kenis G, Rutten BP. The environment and schizophrenia. *Nature* 2010; **468:** 203–12.

317 Giacco D, Amering A, Bird V, et al. Scenarios for the future of mental health care: a social perspective. *Lancet Psychiatry* 2017; **4:** 257–60.

318 Wagenaar AC, Salois MJ, Komro KA. Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. *Addiction* 2009; **104:** 179–90.

319 Priebe S. The political mission of psychiatry. [Editorial]. *World Psychiatry* 2015; **14:** 1–2.

320 Government Office for Science. *Mental Capital and Wellbeing: Making the Most of Ourselves in the 21st Century*. London, 2008; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292450/mental-capital-wellbeing-report.pdf

321 Priebe S. A social paradigm in psychiatry - themes and perspectives. *Epidemiol Psychiatr Sci* 2016; **25:** 521–27.

322 Priebe S, Giacco D, El-Nagib R. *WHO Health Evidence Network Synthesis Report 47: Public health aspects of mental health among migrants and refugees: a review of the evidence on mental health care for refugees, asylum seekers and irregular migrants in the WHO European Region*. 2016, Copenhagen. http://www.euro.who.int/en/data-and-evidence/evidence-informed-policy-making/publications/2016/public-health-aspects-of-mental-health-among-migrants-and-refugees-a-review-of-the-evidence-on-mental-health-care-for-refugees,-asylum-seekers-and-irregular-migrants-in-the-who-european-region-2016

323 Mind Matters. http://www.mindmatters.edu.au/

324 Kidd SA, Kaur J, Virdee G, George TP, McKenzie K, Herman Y. Cognitive remediation for individuals with psychosis in a supported education setting: a randomized controlled trial. *Schizophr Res* 2014; **157:** 90–98.

325 Priebe S, Omer S, Giacco D, Slade M. Resource-oriented therapeutic models in psychiatry: conceptual review. *Br J Psychiatry* 2014; **204:** 256–61.

326 Mahlke CI, Krämer UM, Becker T, Bock T. Peer support in mental health services. *Curr Opin Psychiatry* 2014; **27:** 276–81.

327 Hallett C, Klug G, Lauber C, Priebe S. Volunteering in the care of people with severe mental illness: a systematic review. *BMC Psychiatry* 2012; **12:** 226.

328 World Health Organization. *Mental Health Atlas 2014.* Geneva, 2015.

329 Young AR. *Operation Unchain – Release for the mentally ill in Cambodia.* https://adamrobertyoung.wordpress.com/2016/07/08/operation-unchain-release-for-the-mentally-ill-in-cambodia/

330 Hendler R, Kidia K, Machando D, et al. "We are not really marketing mental health": Mental health advocacy in Zimbabwe. *PLoS One* 2016; **11:** e0161860.

331 World Health Organization. *Comprehensive Mental Health Action Plan 2013-2020*. Geneva, 2013. http://www.who.int/mental_health/action_plan_2013/en/

332 Shinde S, Andrew G, Bangash O, Cohen A, Kirkwood B, Patel V. The impact of a lay counsellor led collaborative care intervention for common mental disorders in public and private primary care: a qualitative evaluation nested in the MANAS trial in Goa, India. *Soc Sci Med* 2013; **88:** 48–55.

334 Kigozi F, Ssebunnya J. The multiplier role of psychiatrists in low income settings. *Epidemiol Psychiatr Sci* 2014; **23:** 123–27.

335 The Mental Health Innovation Network. A global community of mental health innovators. London UK http://mhinnovation.net/find?search_api_views_fulltext=faith&sort_by=search_api_relevance_1

336 Highton-Williamson E, Priebe S, Giacco D. Online social networking in people with psychosis: A systematic review. *Int J Soc Psychiatry* 2015; **61:** 92–101.

337 Andersson G, Titov N. Advantages and limitations of Internet-based interventions for common mental disorders. *World Psychiatry* 2014; **13:** 4–11.

338 Muijen M. Training psychiatrists in Europe: fit for purpose? *Psychiatrist* 2010; **34:** 450–51.

339 The Royal College of Physicians and Surgeons of Canada. *CanMEDS Framework.* http://www.royalcollege.ca/rcsite/canmeds-e

340 World Health Organization. *Psychiatric Training in Europe Report, in collaboration with the European Federation of Psychiatric Trainees.* Copenhagen, 2016.

501. Department of Health and Social Security. Royal Commission on the Law relating to Mental Illness and Mental Deficiency. 1957, London HMSO. Cmnd 169.

502 Moncrieff J. The politics of a new Mental Health Act. *Br J Psychiatry* 2003; **183:** 8–9.

503 Francis R. The Michael Stone Enquiry – A Reflection. *Int J Mental Health Capacity Law* 2007; **15:** 41–49.

504 Ægisdóttir S, White M, Spengler P, et al. The meta-analysis of clinical judgment project: Fifty-six years of accumulated research on clinical versus statistical prediction. *Couns Psychol* 2006; **34:** 341–82.

505 Fazel S, Singh JP, Doll H, Grann M. Use of risk assessment instruments to predict violence and antisocial behaviour in 73 samples involving 24 827 people: systematic review and meta-analysis. *BMJ* 2012; **345:** e4692.

506 Singhal A, Ross J, Seminog O, Hawton K, Goldacre MJ. Risk of self-harm and suicide in people with specific psychiatric and physical disorders: comparisons between disorders using English national record linkage. *J R Soc Med* 2014; **107:** 194–204.

507 Fazel S, Långström N, Hjern A, Grann M, Lichtenstein P. Schizophrenia, substance abuse, and violent crime. *JAMA* 2009; **301:** 2016–23.

508 Andrew A, Knapp M, McCrone P, Parsonage M, Trachtenberg M. Effective Interventions in schizophrenia: the economic case. (Personal Social Services Research Unit, London School of Economics and Political Science, 2012, London, UK.

509 Dawson J, Szmukler G. Fusion of mental health and incapacity legislation. *Br J Psychiatry* 2006; **188:** 504–09.

510 Priebe S, Katsakou C, Amos T, et al. Patients' views and readmissions 1 year after involuntary hospitalisation. *Br J Psychiatry* 2009; **194:** 49–54.

511 Katsakou C, Rose D, Amos T, et al. Psychiatric patients' views on why their involuntary hospitalisation was right or wrong: a qualitative study. *Soc Psychiatry Psychiatr Epidemiol* 2012; **47:** 1169–79.

512 Spandler H, Anderson J, Sapey B. Madness, distress and the politics of disablement. Bristol, Policy Press. 2015.

513 Rose D, Perry E, Rae S, Good N. Service user perspectives on coercion and restraint in mental health. *BJPsych International* (in press). **[AE: In press reference]**

514 Freeman MC, Kolappa K, de Almeida JM, et al. Reversing hard won victories in the name of human rights: a critique of the General Comment on Article 12 of the UN Convention on the Rights of Persons with Disabilities. *Lancet Psychiatry* 2015; **2:** 844–50.

515 Kleintjes S, Lund C, Swartz L. Organising for self-advocacy in mental health: experiences from seven African countries. *Afr J Psychiatry (Johannesbg)* 2013; **16:** 187–95.

516 UN CRPD Committee. (2015) 'Guidelines on article 14 of the Convention on the Rights of Persons with Disabilities: The right to liberty and security of persons with disabilities' Adopted during the Committee's 14th session, September 2015. www.ohchr.org/Documents/HRBodies/CRPD/GC/GuidelinesArticle14.doc. Accessed 14 October 2016.

517 UN Special Rapporteur on Torture and Inhuman or Degrading Treatment or Punishment (2013) *Report*. UN General Assembly, A/HRC/22/55.

518 Ashcraft L, Bloss M, Anthony WA. Best practices: The development and implementation of "no force first" as a best practice. *Psychiatr Serv* 2012; **63:** 415–17.

519 Zinkler M. Germany without Coercive Treatment in Psychiatry — A 15 Month Real World Experience. *Laws* 2016; **5:** 15.

522 Fanning J. Risk and the mental health act 2007: jeopardising liberty, facilitating control? [PhD thesis]. [Liverpool (UK)]: University of Liverpool; 2013.

523 Callaghan S, Ryan CJ. Rising to the human rights challenge in compulsory treatment--new approaches to mental health law in Australia. *Aust N Z J Psychiatry* 2012; **46:** 611–20.

524 Allnutt S, O' Driscoll C. A response to Plastow. *Australas Psychiatry* 2009; **17:** 168–71.

525 The Royal College of Psychiatrists Special Working Party on Clinical Assessment and Management of Risk. Assessment and Clinical Management of Risk of Harm to Other People. Council Report CR 53. London: Royal College of Psychiatrists; 1996.

526 Anfang SA, Appelbaum PS. Civil commitment--the American experience. *Isr J Psychiatry Relat Sci* 2006; **43:** 209–18.

527 Webster C, Douglas K, Eaves D, Hart S. *HCR-20: Assessing Risk for Violence* (Version 2). Burnaby, BC, Canada: Mental Health, Law, and Policy Institute, Simon Fraser University, 1997.

528 Ryan C, Nielssen O, Paton M, Large M. Clinical decisions in psychiatry should not be based on risk assessment. *Australas Psychiatry* 2010; **18:** 398–403.

529 Coggon J. Mental Capacity Law, Autonomy, and best Interests: An Argument for Conceptual and Practical Clarity in the Court of Protection. *Med Law Rev* 2016; **24:** 396–414.

530 Large MM, Ryan CJ, Callaghan S, Paton MB, Singh SP. Can violence risk assessment really assist in clinical decision-making? *Aust N Z J Psychiatry* 2014; **48:** 286–88.

531 Large M. Does the emphasis on risk in psychiatry serve the interests of patients or the public? No. *BMJ* 2013; **346:** f857.

532 Lidz CW, Hoge SK, Gardner W, et al. Perceived coercion in mental hospital admission. Pressures and process. *Arch Gen Psychiatry* 1995; **52:** 1034–39.

533 Szmukler G, Appelbaum P. Treatment pressures, leverage, coercion and compulsion in mental health care. *J Ment Health* 2008; **17:** 233–44.

534 Bonnie RJ, Monahan J. From coercion to contract: reframing the debate on mandated community treatment for people with mental disorders. *Law Hum Behav* 2005; **29:** 485–503.

535 Swartz MS, Swanson JW, Wagner HR, Burns BJ, Hiday VA, Borum R. Can involuntary outpatient commitment reduce hospital recidivism?: Findings from a randomized trial with severely mentally ill individuals. *Am J Psychiatry* 1999; **156:** 1968–75.

536 Burns T, Rugkåsa J, Molodynski A, et al. Community treatment orders for patients with psychosis (OCTET): a randomised controlled trial. *Lancet* 2013; **381:** 1627–33.

537 Social Care, Local Government and Care Partnership Directorate. (2014) Positive and Proactive Care: reducing the need for restrictive interventions. London: Department of Health. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300293/JRA_DoH_Guidance_on_RP_web_accessible.pdf . Accessed 18.04.2017.

538 World Health Organisation. WHO resource book on mental health, human rights and legislation. Geneva, 2005.

539 World Health Organisation. *Mental Health Atlas - 2014 country profiles*. 2014; Available from: www.who.int/mental_health/evidence/atlas/profiles-2014/en.

540 Deshpande S, Kaur J, Zaky M, Loza N. Mental health legislation in Egypt and India. Ethical and practical aspects. *Int J Ment Health* 2015; **42:** 91–105.

541 Firdosi M, Ahmad ZZ. Mental Health Law in India: origins and proposed reforms. *BJPsych Int* 2016; **13:** 65–66.

542 Phillips MR, Chen H, Diesfeld K, et al. China's new mental health law: reframing involuntary treatment. *Am J Psychiatry* 2013; **170:** 588–91.

543 Minas H, Diatri H. Pasung: Physical restraint and confinement of the mentally ill in the community. *Int J Ment Health Syst* 2008; **2:** 8–10.

544 Tareen A, Tareen KI. Mental health law in Pakistan. *BJPsych Intl* 2016; **13:** 67–69.

545 Psychiatrist C. Clinicians' Practice Guide to the Mental Health Act 2014 Edition 3. Government of Western Australia, Perth, 2016.

546 Maramis A, Van Tuan N, Minas H. Mental health in southeast Asia. *Lancet* 2011; **377:** 700–02.

547 Chaskel R, Shultz JM, Gaviria SL, et al. Mental health law in Colombia. *BJPsych Int* 2015; **12:** 92–94.

548 World Health Organisation. *Improving Health Systems and Services for Mental Health*. Geneva, 2009.

549 Lambert TJ, Velakoulis D, Pantelis C. Medical comorbidity in schizophrenia. *Med J Aust* 2003; **178** (suppl)**:** S67–70.

550 Bach M, Kerzner L. A new paradigm for protecting autonomy and the right to legal capacity. Law Commission of Ontario, Toronto, 2010.

551 Puras, D. Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health (in press). **[AE: In press reference]**

552 World Health Organisation. mhGAP Intervention Guide - Version 2.0 for mental, neurological and substance use disorders in non-specialized health settings. 2016.

601 http://www.pewglobal.org/2016/02/22/smartphone-ownership-and-internet-usage-continues-to-climb-in-emerging-economies/

602 The smartphone is ubiquitous, addictive and transformative: The Economist. Feb 28th 2015. From the print edition.

603 Gay K, Torous J, Joseph A, Pandya A, Duckworth K. Digital Technology Use Among Individuals with Schizophrenia: Results of an Online Survey. *JMIR Ment Health* 2016; **3:** e15.

604 Firth J, Cotter J, Torous J, Bucci S, Firth JA, Yung AR. Mobile phone ownership and endorsement of "mHealth" among people with psychosis: a meta-analysis of cross-sectional studies. *Schizophr Bull* 2016; **42:** 448–55.

606 Ennis L, Rose D, Denis M, Pandit N, Wykes T. Can't surf, won't surf: the digital divide in mental health. *J Ment Health* 2012; **21:** 395–403.

607 Wykes et al. In Press with JMIR. **[AE: In press reference]**

608 Nicholas J, Larsen ME, Proudfoot J, Christensen H. Mobile Apps for Bipolar Disorder: A Systematic Review of Features and Content Quality. *J Med Internet Res* 2015; **17:** e198.

609 Larsen ME, Nicholas J, Christensen H. A Systematic Assessment of Smartphone Tools for Suicide Prevention. *PLoS One* 2016; **11:** e0152285.

610 Vahia IV, Sewell DD. Late-Life Depression: A Role for Accelerometer Technology in Diagnosis and Management. *Am J Psychiatry* 2016; **173:** 763–68.

611 Baus O, Bouchard S. Moving from virtual reality exposure-based therapy to augmented reality exposure-based therapy: a review. *Front Hum Neurosci* 2014; **8:** 112.

612 North MM, North SM. Virtual reality therapy. Computer-Assisted and Web-Based Innovations in Psychology, Special Education, and Health, 2016; 141.

613 http://www.kingsfund.org.uk/publications/articles/eight-technologies-will-change-health-and-care

614 Torous J, Staples P, Shanahan M, et al. Utilizing a personal smartphone custom app to assess the patient health questionnaire-9 (PHQ-9) depressive symptoms in patients with major depressive disorder. *JMIR Ment Health* 2015; **2:** e8.

615 Hager BM, Keshavan MS. Neuroimaging Biomarkers for Psychosis. *Curr Behav Neurosci Rep* 2015; **2015:** 1–10.

616 Moore RC, Depp CA, Wetherell JL, Lenze EJ. Ecological momentary assessment versus standard assessment instruments for measuring mindfulness, depressed mood, and anxiety among older adults. *J Psychiatr Res* 2016; **75:** 116–23.

617 Gao Y, Li A, Zhu T, Liu X, Liu X. How smartphone usage correlates with social anxiety and loneliness. *PeerJ* 2016; **4:** e2197.

618 Saeb S, Zhang M, Karr CJ, et al. Mobile Phone Sensor Correlates of Depressive Symptom Severity in Daily-Life Behavior: An Exploratory Study. *J Med Internet Res* 2015; **17:** e175.

619 Faurholt-Jepsen M, Busk J, Frost M, et al. Voice analysis as an objective state marker in bipolar disorder. *Transl Psychiatry* 2016; **6:** e856.

620 Naslund JA, Aschbrenner KA, Barre LK, Bartels SJ. Feasibility of popular m-health technologies for activity tracking among individuals with serious mental illness. *Telemed J E Health* 2015; **21:** 213–16.

621 Stopczynski A, Stahlhut C, Larsen JE, Petersen MK, Hansen LK. The smartphone brain scanner: a portable real-time neuroimaging system. *PLoS One* 2014; **9:** e86733.

622 Nakatsuka N, Andrews AM. Neurochips Enable Nanoscale Devices for High-Resolution In Vivo Neurotransmitter Sensing. *Neuropsychopharmacology* 2016; **41:** 378–79.

623 Stedtfeld RD, Tourlousse DM, Seyrig G, et al. Gene-Z: a device for point of care genetic testing using a smartphone. *Lab Chip* 2012; **12:** 1454–62.

624 Torous J, Staples P, Onnela JP. Realizing the potential of mobile mental health: new methods for new data in psychiatry. *Curr Psychiatry Rep* 2015; **17:** 602.

625 Buntrock C, Ebert DD, Lehr D, et al. Effect of a Web-Based Guided Self-help Intervention for Prevention of Major Depression in Adults With Subthreshold Depression: A Randomized Clinical Trial. *JAMA* 2016; **315:** 1854–63.

626 Hsin H, Torous J, Roberts L. An Adjuvant Role for Mobile Health in Psychiatry. *JAMA Psychiatry* 2016; **73:** 103–04.

627 Bashshur RL, Shannon GW, Bashshur N, Yellowlees PM. The Empirical Evidence for Telemedicine Interventions in Mental Disorders. *Telemed J E Health* 2015; **22:** 87–113.

628 Baumel A, Correll CU, Hauser M, et al. Health Technology Intervention After Hospitalization for Schizophrenia: Service Utilization and User Satisfaction. *Psychiatr Serv* 2016; **67:** 1035–38.

629 Bickman L, Lyon AR, Wolpert M. Achieving Precision Mental Health through Effective Assessment, Monitoring, and Feedback Processes : Introduction to the Special Issue. *Adm Policy Ment Health* 2016; **43:** 271–76.

630 http://www.nfarattc.org/wp-content/uploads/2016/01/Handout_DynamiCare-CASAT-Webinar.pdf

631 Freeman D, Bradley J, Antley A, et al. Virtual reality in the treatment of persecutory delusions: randomised controlled experimental study testing how to reduce delusional conviction. *Br J Psychiatry* 2016; **209:** 62–67.

632 Hilty D, Chan S, Torous J, Matmahur J, Mucic D. New frontiers in healthcare and technology: internet-and web-based mental options emerge to complement in-person and telepsychiatric care options. *J Health Med Informat* 2015; **6:** 200.

633 Sarkar U, Gourley GI, Lyles CR, et al. Usability of Commercially Available Mobile Applications for Diverse Patients. *J Gen Intern Med* 2016; **31:** 1417–26.

634 de Alva et al. 'It feels different from real life': Users' Opinions of Mobile Applications for Mental Health. OzCHI '15, December 07 - 10 2015, Melbourne, VIC, Australia.

635 Owen JE, Jaworski BK, Kuhn E, Makin-Byrd KN, Ramsey KM, Hoffman JE. mHealth in the Wild: Using Novel Data to Examine the Reach, Use, and Impact of PTSD Coach. *JMIR Ment Health* 2015; **2:** e7.

636 Frisbee KL. Variations in the Use of mHealth Tools: The VA Mobile Health Study. *JMIR Mhealth Uhealth* 2016; **4:** e89.

637 Shaw RJ, Steinberg DM, Bonnet J, et al. Mobile health devices: will patients actually use them? *J Am Med Inform Assoc* 2016; **23:** 462–66.

639 Schlosser D, Campellone T, Kim D, et al. Feasibility of PRIME: A Cognitive Neuroscience-Informed Mobile App Intervention to Enhance Motivated Behavior and Improve Quality of Life in Recent Onset Schizophrenia. *JMIR Res Protoc* 2016; **5:** e77.

640 Mohr DC, Burns MN, Schueller SM, Clarke G, Klinkman M. Behavioral intervention technologies: evidence review and recommendations for future research in mental health. *Gen Hosp Psychiatry* 2013; **35:** 332–38.

641 BinDhim NF. Hawkey A, Trevena L. A Systematic Review of Quality Assessment Methods for Smartphone Health Apps. *Telemed J E Health* 2015; **21:** 97–104.

642 Schueller SM, Washburn JJ, Price M. Exploring Mental Health Providers' Interest in Using Web and Mobile-Based Tools in their Practices. *Internet Interventions.* 2016; **4:** 145–51.

644 Torous J, Chan SR, Yee-Marie Tan S, et al. Patient Smartphone Ownership and Interest in Mobile Apps to Monitor Symptoms of Mental Health Conditions: A Survey in Four Geographically Distinct Psychiatric Clinics. *JMIR Ment Health* 2014; **1:** e5.

645 Smith, A. "Chapter One: A Portrait of Smartphone Ownership." Pew Research Center Internet Science Tech RSS. N.p., 2015. Web. 03 Nov. 2016.

646 Robotham D, Satkunanathan S, Doughty L, Wykes T. Do we still have a digital divide in mental health? Cross-sectional surveys over five years. *J Med Internet Res* 2016; **18:** e309.

647 Blenner SR, Köllmer M, Rouse AJ, Daneshvar N, Williams C, Andrews LB. Privacy Policies of Android Diabetes Apps and Sharing of Health Information. *JAMA* 2016; **315:** 1051–52.

648 Sunyaev A, Dehling T, Taylor PL, Mandl KD. Availability and quality of mobile health app privacy policies. *J Am Med Inform Assoc* 2015; **22:** e28–33.

649 ONC_HealthIT. "Examining Oversight of the Privacy & Security of Health Data Collected by Entities Not Regulated by HIPAA - Health IT Buzz." Health IT Buzz Examining Oversight of the Privacy Security of Health Data Collected by Entities Not Regulated by HIPAA Comments. N.p., 2016. Web. 03 Nov. 2016.

650 Monteith S, Glenn T. Automated Decision-Making and Big Data: Concerns for People With Mental Illness. *Curr Psychiatry Rep* 2016; **18:** 112.

651 In press, Torous and Roberts in JNMD (will be out soon) **[AE: In press reference]**

652 Keoleian V, Polcin D, Galloway GP. Text messaging for addiction: a review. *J Psychoactive Drugs* 2015; **47:** 158–76.

654 Orlowski S, Matthews B, Bidargaddi N, et al. Mental Health Technologies: Designing With Consumers. *JMIR Hum Factors* 2016; **3:** e4.

655 Torous et al, 2017.

656 Hidalgo-Mazzei D, Murru A, Reinares M, Vieta E, Colom F. Big Data in mental health: a challenging fragmented future. *World Psychiatry* 2016; **15:** 186–87.

657 Grunebaum MF. Suicidology meets "Big Data". *J Clin Psychiatry* 2015; **76:** e383–84.

658 Barnett I, Onnela JP. Inferring Mobility Measures from GPS Traces with Missing Data. arXiv preprint arXiv:1606.06328. 2016 Jun 20.

660 Passos IC, Mwangi B, Kapczinski F. Big data analytics and machine learning: 2015 and beyond. *Lancet Psychiatry* 2016; **3:** 13–15.

661 Chekroud AM, Zotti RJ, Shehzad Z, et al. Cross-trial prediction of treatment outcome in depression: a machine learning approach. *Lancet Psychiatry* 2016; **3:** 243–50.

662 Bedi G, Carrillo F, Cecchi GA, et al. Automated analysis of free speech predicts psychosis onset in high-risk youths. *NPJ Schizophr* 2015; **1:** 15030.

663 Desjardins I, Cats-Baril W, Maruti S, Freeman K, Althoff R. Suicide Risk Assessment in Hospitals: An Expert System-Based Triage Tool. *J Clin Psychiatry* 2016; **77:** e874–82.

664 Walsh S, Golden E, Priebe S. Systematic review of patients' participation in and experiences of technology-based monitoring of mental health symptoms in the community. *BMJ Open* 2016; **6:** e008362.

665 Chicchi Giglioli IA, Pallavicini F, Pedroli E, Serino S, Riva G. Augmented Reality: A Brand New Challenge for the Assessment and Treatment of Psychological Disorders. *Comput Math Methods Med* 2015; DOI:10.1155/2015/862942.

666 Ben-Zeev D, Scherer EA, Gottlieb JD, et al. mHealth for Schizophrenia: Patient Engagement With a Mobile Phone Intervention Following Hospital Discharge. *JMIR Ment Health* 2016; **3:** e34.

667 Anguera JA, Jordan JT, Castaneda D, Gazzaley A, Areán PA. Conducting a fully mobile and randomised clinical trial for depression: access, engagement and expense. *BMJ Innov* 2016; **2:** 14–21.

668 http://securities.stanford.edu/filings-documents/1057/FI00_03/2016111_f01c_16CV00151.pdf

669 Kuhn TS. The structure of scientific revolutions. University of Chicago press, 2012.

671 https://www.ftc.gov/news-events/press-releases/2016/01/lumosity-pay-2-million-settle-ftc-deceptive-advertising-charges
672 https://psychiatry.org/psychiatrists/practice/mental-health-apps/app-evaluation-model
673 http://smarthealthit.org/
674 Wilbanks J, Friend SH. First, design for data sharing. *Nat Biotechnol* 2016; **34:** 377–79.
675 Walker J, Meltsner M, Delbanco T. US experience with doctors and patients sharing clinical notes. *BMJ* 2015; **350:** g7785.
676 https://www.myhealthlockerlondon.nhs.uk/
677 Donker T, Blankers M, Hedman E, Ljótsson B, Petrie K, Christensen H. Economic evaluations of Internet interventions for mental health: a systematic review. *Psychol Med* 2015; **45:** 3357–76.
678 Chowdhary N, Anand A, Dimidjian S, et al. The Healthy Activity Program lay counsellor delivered treatment for severe depression in India: systematic development and randomised evaluation. *Br J Psychiatry* 2016; **208:** 381–88.
679 Lopes CS, Abreu GA, dos Santos DF, et al. ERICA: prevalence of common mental disorders in Brazilian adolescents. *Rev Saude Publica* 2016; **50** (suppl 1)**:** 14s.
680 Ben-Zeev D, Drake R, Marsch L. Clinical technology specialists. *BMJ* 2015; **350:** h945.
681 Armontrout J, Torous J, Fisher M, Drogin E, Gutheil T. Mobile Mental Health: Navigating New Rules and Regulations for Digital Tools. *Curr Psychiatry Rep* 2016; **18:** 91.
682 Christensen H, Cuijpers P, Reynolds CF 3rd. Changing the direction of suicide prevention research: a necessity for true population impact. *JAMA Psychiatry* 2016; **73:** 435–36.
683 Koutsouleris N, Kahn RS, Chekroud AM, et al. Multisite prediction of 4-week and 52-week treatment outcomes in patients with first episode psychosis: a machine learning approach. *Lancet Psychiatry* 2016; **3:** 935–46.
684 Berrouiguet S, Baca-García E, Brandt S, Walter M, Courtet P. Fundamentals for Future Mobile-Health (mHealth): A Systematic Review of Mobile Phone and Web-Based Text Messaging in Mental Health. *J Med Internet Res* 2016; **18:** e135.
685 Gates B, Myhrvold N, Rinearson P. The road ahead. rev. ed. New York and London: Penguin Books. 1996.
686 Inkster B, Stillwell D, Kosinski M, Jones P. A decade into Facebook: where is psychiatry in the digital age? *Lancet Psychiatry* 2016; **3:** 1087–90.
687 http://www.imshealth.com/en/thought-leadership/ims-institute/reports/patient-adoption-of-mhealth
801 Proctor EK, Landsverk J, Aarons G, Chambers D, Glisson C, Mittman B. Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. *Adm Policy Ment Health* 2009; **36:** 24–34.
802 Ross DA, Travis MJ, Arbuckle MR. The future of psychiatry as clinical neuroscience: why not now? *JAMA Psychiatry* 2015; **72:** 413–14.
803 Raney L. Integrated care: the evolving role of psychiatry in the era of health care reform. *Psychiatr Serv* 2013; **64:** 1076–78.
804 Summers RF. Integrated Behavioral Health Care and Psychiatric Training. *Acad Psychiatry* 2015; **39:** 425–29.
805 Insel TR, Quirion R. Psychiatry as a clinical neuroscience discipline. *JAMA* 2005; **294:** 2221–24.
806 López-Ibor Alcocer MI. The brain and mind as a network: can neuroimaging and connectomics help us to better understand psychiatric disorders? *Middle East Curr Psychiatry* 2016; **23:** 1–2.
807 Marquand AF, Wolfers T, Mennes M, Buitelaar J, Beckmann CF. Beyond lumping and splitting: a review of computational approaches for stratifying psychiatric disorders. *Biol Psychiatry Cogn Neurosci Neuroimaging* 2016; **1:** 433–47.
808 Xie H-G, Frueh FW. Pharmacogenomics steps toward personalized medicine. *Per Med* 2005; **2:** 325–37.
809 Hirschtritt ME, Besterman AD, Ross DA. Psychiatric Pharmacogenomics: How Close Are We? *Biol Psychiatry* 2016; **80:** e63–65.
810 Klengel T, Binder EB. Epigenetics of Stress-Related Psychiatric Disorders and Gene × Environment Interactions. *Neuron* 2015; **86:** 1343–57.
811 Kirmayer LJ, Minas H. The future of cultural psychiatry: an international perspective. *Can J Psychiatry* 2000; **45:** 438–46.
812 Crawford A, Sunderji N, López J, Soklaridis S. Defining competencies for the practice of telepsychiatry through an assessment of resident learning needs. *BMC Med Educ* 2016; **16:** 28.
813 Spurio MG. Words that heal. *Psychiatr Danub* 2015; **27** (suppl 1)**:** S21–27.
814 Barsaglini A, Sartori G, Benetti S, Pettersson-Yeo W, Mechelli A. The effects of psychotherapy on brain function: a systematic and critical review. *Prog Neurobiol* 2014; **114:** 1–14.
815 Plakun EM. Psychotherapy and Psychosocial Treatment: Recent Advances and Future Directions. *Psychiatr Clin North Am* 2015; **38:** 405–18. DOI:10.1016/j.psc.2015.05.012.

816 Cabaniss DL, Wainberg ML, Oquendo MA. Evidence-Based Psychosocial interventions: Novel challenges for training and Implementaiton. *Depress Anxiety* 2015; **32:** 802–04.

817 Whiteford HA, Degenhardt L, Rehm J, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet* 2013; **382:** 1575–86.

818 Collins PY, Saxena S. Action on mental health needs global cooperation. *Nature* 2016; **532:** 25–27.

819 Kessler R, Stafford D. Primary Care Is the De Facto Mental Health System in. In: *Collaborative Medicine Case Studies: Evidence in Practice*. Springer; 2008: 9-22.

821 DE Hert M, Correll CU, Bobes J, et al. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 2011; **10:** 52–77.

822 Vanderlip ER, Raney LE, Druss BG. A Framework for Extending Psychiatrists' Roles in Treating General Health Conditions. *Am J Psychiatry* 2016; **173:** 658–63.

823 Sowers W, Arbuckle M, Shoyinka S. Recommendations for Primary Care Provided by Psychiatrists. *Community Ment Health J* 2016; **52:** 379–86.

824 World Health Organization. Mental Health Atlas 2011. World Health Organization. http://www.who.int/mental_health/publications/mental_health_atlas_2011/en/. Published 2011. Accessed November 28, 2016.

825 (England) NHS. NHS Five Year Forward View. https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf. Published 2014. Accessed November 23, 2016.

827 NHS Leadership Academy. *Healthcare Leadership Model: The Nine Dimensions of Leadership Behaviour*. West Yorkshire, England; 2013.

828 The Royal Australian and New Zealand College of Psychiatrists. Professional Practice Standards and Guides for Telepsychiatry. https://www.ranzcp.org/Files/Resources/RANZCP-Professional-Practice-Standards-and-Guides.aspx. Published 2013. Accessed November 23, 2016.

829 Olthuis JV, Watt MC, Bailey K, Hayden JA, Stewart SH. Therapist-supported Internet cognitive behavioural therapy for anxiety disorders in adults. *Cochrane Database Syst Rev* 2015; **3:** CD011565.

830 Meurk C, Leung J, Hall W, Head BW, Whiteford H. Establishing and Governing e-Mental Health Care in Australia: A Systematic Review of Challenges and A Call For Policy-Focussed Research. *J Med Internet Res* 2016; **18:** e10.

831 Greenaway D. Shape of Training: Securing the future of excellent patient care. http://www.shapeoftraining.co.uk/static/documents/content/Shape_of_training_FINAL_Report.pdf_53977887.pdf. Published 2013. Accessed November 23, 2016.

832 Centers for Medicare and Medicaid Services. CMS Quality Strategy. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityInitiativesGenInfo/Downloads/CMS-Quality-Strategy.pdf. Published 2016. Accessed November 23, 2016.

833 Chester P, Ehrlich C, Warburton L, Baker D, Kendall E, Crompton D. "What is the work of Recovery Oriented Practice? A systematic literature review". *Int J Ment Health Nurs* 2016; **25:** 270–85.

834 Maughan D. Sustainability in Psychiatry. http://www.rcpsych.ac.uk/files/pdfversion/OP97.pdf. Published 2015. Accessed November 23, 2016.

835 World Health Organization. Advocacy for mental health. http://www.who.int/mental_health/resources/en/Advocacy.pdf. Published 2003. Accessed November 23, 2016.

836 Holmes EG, Connolly A, Putnam KT, et al. Taking Care of Our Own: A Multispecialty Study of Resident and Program Director Perspectives on Contributors to Burnout and Potential Interventions. *Acad Psychiatry* 2017; **41:** 159–66.

837 Tolks D, Schäfer C, Raupach T, et al. An introduction to the inverted/flipped classroom model in education and advanced training in medicine and in the healthcare professions. *GMS J Med Educ* 2016; **33:** Doc46.

838 Knowles MS, Holton EF, Swanson RA. *The Adult Learner*. 8th Ed. Abington, Oxon: Routledge; 2015.

839 Lockhart BJ, Capurso NA, Chase I, et al. The Use of a Small Private Online Course to Allow Educators to Share Teaching Resources Across Diverse Sites: The Future of Psychiatric Case Conferences? *Acad Psychiatry* 2017; **41:** 81–85.

840 Hall P, Weaver L. Interdisciplinary education and teamwork: a long and winding road. *Med Educ* 2001; **35:** 867–75.

841 Morphet J, Hood K, Cant R, Baulch J, Gilbee A, Sandry K. Teaching teamwork: an evaluation of an interprofessional training ward placement for health care students. *Adv Med Educ Pract* 2014; **5:** 197–204.

842 Agrawal S, Capponi P, López J, et al. From surviving to advising: A novel course pairing mental health and addictions service

users as advisors to senior psychiatry residents. *Acad Psychiatry* 2016; **40:** 475–80.

843 Neurology TAC for GME and the AB of P and. The Psychiatry Milestone Project. https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PsychiatryMilestones.pdf. Published 2015. Accessed November 23, 2016.

844 Weiss A, Ozdoba A, Carroll V, DeJesus F. Entrustable Professional Activities: Enhancing Meaningful Use of Evaluations and Milestones in a Psychiatry Residency Program. *Acad Psychiatry* 2016; **40:** 850–54.